

THE Macdonald

JOURNAL

SPRING 1991

\$4.25

On The Wild Side

The following organizations or individuals
are
financially supporting
The Macdonald Journal



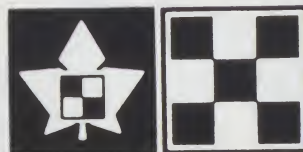
Veterinary Division

Funk Seeds
and the Agricultural
Division of

CIBA-GEIGY CANADA LTD.



Animal Health



Ralston Purina
Canada Inc.



Dr. Donald McQueen Shaver



ROYAL BANK
OF CANADA



shaver
BEEFBLEND



May, 1991

Volume 52, No. 2

Director
Aurie Baker

Editor
Lazel M. Clarke

Regular Contributors
emeritus Professor R.H. Estey
Department of Plant Science
or "Fun Fact Fable Fiction"

inda Jacobs Starkey
University Coordinator
Professional Practice (Stage) in Dietetics
School of Dietetics and Human Nutrition
or "Issues in Human Nutrition"

artlet House
or news from the Graduates'
Society and Development Offices

r. R.K. Stewart
Associate Dean, Research
or "Seeking Solutions"

Macdonald Journal Management Committee

Aurie Baker
Ian Charade
Lazel M. Clarke
r. Karen Lapsley
Gregory Weil

Cover by
R. Rodger D. Titman

The Macdonald Journal is published quarterly (February, May, August, November) by the Extension Service of the Faculty of Agricultural and Environmental Sciences of McGill University.

Material in this issue may be reprinted editorially without permission; however, credit to The Macdonald Journal would be appreciated. Address all inquiries to the Editor, Box 284, Macdonald Journal, McGill University, Macdonald Campus, 21,111 Lakeshore Rd., St. Anne de Bellevue, Que. H9X 1C0 (416) 398-7704, Fax (416) 398-7955

Second class registration number 0463

Subscription rates are \$17 for 1 year; \$28 for 2 years; \$36 for 3 years. Outside Canada - \$27 for 1 year, \$50 for 2 years; \$75 for 3 years.

ISSN 0047-5335

Printed by Studio Shatex Inc.

Features

- 5 Wildlife Biology at Macdonald: The Academic Program
- 6 Experiences Outside the Classroom
- 7 The Evolution of the Raptor Centre into an Avian Science and Conservation Centre
- 8 Endangered Loggerhead Shrikes
- 9 Freshwater Fish Culture in Quebec
- 10 The Ecomuseum: Provider of Wildlife on Campus
- 11 Elk Research in Animal Science
- 12 Blessing of the Birds
- 13 Agriculture and Wildlife: Can They Coexist?

Departments

- | | |
|------------------------------|---------------------------|
| 4 From the Dean's Desk | 24 Fun Fact Fable Fiction |
| 15 Mac International | 25 Seeking Solutions |
| 16 Beyond These Gates | 26 Diploma Corner |
| 21 Focus Environment | 32 Newsmakers |
| 22 Issues in Human Nutrition | |

The QWI

The Quebec Women's Institutes' section of *The Macdonald Journal* containing information on current activities and up-coming events at the Branch, County, Board, and Provincial levels may be found on pages 28 to 31.

Cover



As you read through the lead articles featuring the Wildlife Resources section here at Macdonald, you will notice the wide variety of interests of our Wildlife biologists. When they present you with their best colour slides you see everything from stampeding caribou to a "smiling" frog. Difficult to choose, but thanks to the critical and artistic eye of Steve Tinker of Renewable Resources, I think we have a winner in Dr. Rodger Titman's Goldfinch. The selection of articles gives you a marvelous insight into Wildlife at Mac - it's an exciting place to be - and I found the theme easily led us "Beyond These Gates." With two articles on Wildlife graduates already on hand and a wealth of material gleaned from the staff on other exciting careers, the pages quickly filled with articles we hope you'll find of interest. My thanks to the Wildlifers and particular thanks, too, to David Johnston, Principal of McGill University, for his timely and critical assessment of Canada's Green Plan which makes for good reading in the Focus Environment column.

From the Dean's Desk

Rural Canada Must Diversify



On February 3, 4, and 5, 1991, a conference on rural development "Les États Généraux du Monde Rural" was held in Montreal with delegates from Quebec's farming and small town communities as well as institutions allied with the rural milieu in attendance. The need for dialogue and for action that led to the Montreal conference is not restricted to this province. Rural communities in the rest of Canada, indeed, rural communities worldwide are facing problems. These are the result of the evolution of our society and of rural communities being ignored to a greater and greater degree by the rest of society.

At the turn of the century, when Canada's faculties of agriculture, the Research Branch of Agriculture Canada, and the provincial extension services were founded, service to Canada's agricultural production sector and service to rural Canada were one and the same. Thus one could today make the point that these services provided by Canada's various agricultural institutions were first and foremost programs designed to serve rural Canada and were only handled by agricultural institutions because the principal economic activity in rural areas at that time was agriculture. The situation is now very different. Less than three per cent of Canadians are involved in production agriculture, and our rural communities are, in many cases, threatened. This is due to a large extent to the tremendous success of our agricultural

policies, extension programs, teaching, research, and the ingenuity and efforts of Canada's farmers. As a result of these combined efforts, Canadians enjoy cheaper food in terms of constant dollars than ever before in our history.

To continue to succeed, our agricultural production sector must become even more efficient if it is to compete world-wide and provide the economic activity required to help support rural Canada. We must realize, however, that with the increasing efficiency of food production, labour requirements have declined dramatically, thus

causing a decline in our rural population. To reverse this decline, rural Canada must diversify its economic activity while building on its foundation of a strong and competitive agricultural sector. Canada's faculties of agriculture, the Research Branch of Agriculture Canada, and our provincial extension services have not, to date, fully realized the need for diversification. These institutions have not responded to the changing needs of rural Canada.

If our rural communities are to be sustained, we must review the roles of the institutions that were put in place nearly a century ago.

A great deal has changed over the years, but our assistance to rural Canada has changed very little. These institutions must either diversify their services or downsize and make resources available to other institutions to serve the more diversified needs of rural Canada. Such diversification, based on a solid agricultural foundation, could include such things as small businesses, a renewed look at forestry, sporting, leisure, and cultural activities, and a nationwide effort to ensure the maintenance of our environment.

It is in an effort to help meet these changing needs that McGill University's Faculty of Agriculture has evolved to the Faculty of Agricultural and Environmental Sciences. This renewed mandate in the area of environmental sciences will enable Macdonald to continue to contribute to rural Canada as envisioned by our founder, Sir William Macdonald.

Let us hope that all Canadians recognize the need to support rural Canada and thus ensure a strong, prosperous, and vital future for this important part of our country.

Dr. Roger B. Buckland
Vice-Principal, Macdonald Campus
Dean, Faculty of Agricultural and
Environmental Sciences

Friends of the Journal

It is with particular pleasure that we take this opportunity to acknowledge those individuals who have made a recent financial contribution to *The Macdonald Journal*. Their thoughtfulness and support are much appreciated.

Arthur Abbey

Trina Berenson

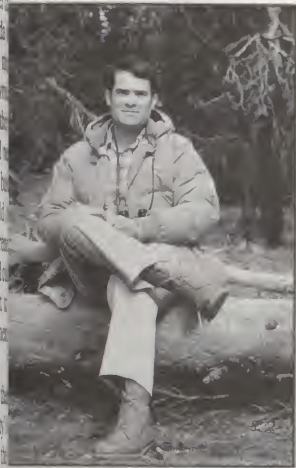
Jim Currier

Dr. J.F. Gerald Millette

Karen Lyn Mudie

Wildlife Biology at Macdonald: The Academic Program

Dr. Rodger D. Titman, Associate Dean, Academic,
Professor, Wildlife Resources
Department of Renewable Resources



Rodger Titman relaxing in
Stoneycroft National Park.

The Wildlife Resources Major was established in 1973 coincident with the formation of the Department of Renewable Resources. Numbers of undergraduates in the three years of study have ranged

provides this opportunity. Courses offered for Wildlife students are open to others as well and are frequently taken by students from the Environmental Biology, Resource Conservation, and Applied Zoology majors.

The program of graduate studies in wildlife biology revolves around thesis research largely determined by the interests and funding of individual staff members. Numbers in recent years have averaged 35 graduate students (MSc & PhD candidates together), close to the number of undergraduates. Current staff research interests include the following topics: Roger Bider — animal activity, population dynamics and habitat utilization by turtles, small mammals and vertebrate pests; David Bird — physiology, ecology, toxicol-



During post-graduate studies, Suzanne Campeau working on habitat improvement using artificial plant material.

from 26 to 52 and now consist of 30 students. The curriculum is designed to expose students to the principles of ecology, the basic biology of vertebrate animals, and the physiological and physical and biological attributes of their environment combined with human factors which impinge upon them. Students thus take courses in biology, chemistry, physics, economics, sociology, law and environmental impact assessment to complement the traditional biology courses. Emphasis is placed on applied aspects including extensive use of field stations such as the Stoneycroft Wildlife Area, the Morgan Arboretum, and Lac Carré Field Station. To many students a highlight is our desert ecology course which visits deserts of Texas and Arizona including a three-week field excursion.

The program gives a student the flexibility to choose a rigorous curriculum aiming toward graduate studies by concentrating on birds, insect systems, or analytical techniques, for example, or to obtain a broad background by enrolling in a variety of resource related subjects. With appropriate course selection students can meet the requirements for certification by The Wildlife Society. To our knowledge only one other university in Canada



Canvasback have declined on the prairies as wetlands have been altered or destroyed.

ogy, conservation and management of birds of prey; Rodger Titman — ecology, habitat selection and behaviour of ducks and other birds and wetland ecology; Fred Whoriskey — ecology, behaviour, predator-prey interactions and energetics of fish and environmental impacts of aquaculture.

Our research program is enhanced by the activities of closely aligned Adjunct Professors who also supervise graduate students. Their other affiliations and research interests are as follows: Kathleen

Blanchard, Atlantic Center for the Environment - Quebec-Labrador Foundation — public education and the biology and conservation of marine birds; Robert G. Clark, Canadian Wildlife Service — avian degradation of agricultural crops, reproductive biology of waterfowl; Christiane Hudon, Canada Department of Fisheries and Oceans — biology and management of arctic fisheries; Henry Murkin, Ducks Unlimited — habitat manipulation and wetland ecology and management; Norman Seymour, St. Francis Xavier University — ecology and behaviour of ducks; Thomas G. Smith — Arctic Biological Station, Canada Department of Fisheries and Oceans — ecology and population dynamics of marine mammals, particularly seals and beluga whales.



The seriously declining Black Duck has been the subject of studies of habitat selection and breeding behaviour.

Experiences Outside the Classroom

by Professor J. Roger Bider
Wildlife Resources
Department of Renewable Resources



Roger Bider with members of the Fisheries and Wildlife Management class at Lac Carré.

Wildlife offers more than just classroom and indoor laboratory exercises. One of the great things about our program is that we liberally use field trips in many of our courses. Some of these experiences, such as seining fish in the Ottawa River on a warm September evening, collecting snakes and salamanders on Ile Perrot, or bird-watching below the Lachine rapids and on Lake St Francis are but a part of a variety of field laboratory exercises which take place off campus. More intensive field work, however, is conducted both in our own Wildlife Area, at Lac Carré and on our Desert Ecology field trip.



Students sampling at Lac du Passage in the Laurentians.

The Wildlife Area is our key outdoor laboratory space. This 33 ha fenced area, which lies between the Morgan Arboretum and the Lods Research Centre, is truly a wildlifer's dream come true. Its main feature is the 1 ha Stoney-croft pond with its turtles, salamanders, frogs and all the other creatures that water usually attracts. In addition the mix of field, a rich bottomland

forest, and thick stands of hawthorn interspersed with wild apple trees make the area irresistible to as many as 130 species of birds. The area was fenced off to allow the development of research facilities, and Ducks Unlimited installed some dikes to maximize the waterfowl potential of the area. A quarter hectare flight pen is used for waterfowl behavioral studies, and a 1.5 ha compound suitable for either wolves or deer rounds out our holding facilities. Observation towers, blinds and mowed paths enhance the area for use by our students, particularly those taking such

courses as natural history of the vertebrates or ornithology. Over the years the Wildlife Area has also provided a base for many undergraduate as well as graduate level research projects on a wide variety of species including goldfish, salamanders, turtles, raccoons, and ducks.

Lac Carré refers to a site in the Laurentians which lies just outside the Lac Carré municipal limits, about a 1 1/2 hour drive from campus. The 150 ha area, which is privately owned, has been used for research and teaching over a span of 30 years, and has been the object of about 25 published studies. It encompasses a broad range of Laurentian habitats on glacial tills and alluvial sand deposits which have been sculptured by three streams of varying sizes. These habitats dominated by conifers in the valley and mixed hardwoods at the higher elevations are complementary to the Wildlife Area on campus.

Each fall the students in Fisheries and Wildlife Management spend the week preceding registration at Lac Carré. The camp gives the students the opportunity to do intensive collecting of data which are analyzed later in the semester. Survey methods such as mark and recapture studies of rodents, habitat analysis, as well as bird watching and bird banding are all part of the daily routine. Other activities include electrofishing and doing a biomass study of a part of a stream which can be dried out for the purpose. Squeezed into the week are also a couple of side trips to a deer yard,

a fish hatchery and, more recently, Lac du Passage.

Lac du Passage is a very special place inasmuch as it is the site of a fresh water floating fish farm and a site which offers students the opportunity to practice a range of limnological techniques. Once at the lake, participants spend a long day familiarizing themselves with instruments which gather water samples, bottom samples, record oxygen, temperature and depth profiles, and measure turbidity among other things. In addition students also get an in depth view of the fish culture system which is, as yet, novel in this country.

The Desert Ecology field trip, which has also been called the "Texas trip" is the mother of all field courses and sometimes considered as a test of endurance as well as a super way to cap off an undergraduate academic career. Over a period of three years students go constantly bombarded with examples which relate to desert conditions. They are told life zones, adaptations to dry and hot conditions, are given examples drawn from experiments done in patchy desert conditions, and are made to learn about animals like lizards which are not even found in Quebec. In an attempt to bring a lot of these bits and pieces together in a palatable manner we initiated the field trip to the southwest states. Over the years, the popularity of the course led us to extend the experience to what is now a 12,000 km trip over a three-week period.

Impossible? Not on your life. Six thousand of those kilometers are done in two stretches about 40 hours each. The first takes us from campus to the Aransas National Wildlife Refuge in Texas, home of the over wintering Whooping Crane, and the other from Mesquite Verde, Colorado, ancient homes of generations of cliff dwellers, back to campus. Between these tests of endurance are a series of unforgettable experiences. The trip for the most part takes us along the coast of the Gulf of Mexico and along the Mexican border. Since we are self sufficient with camping gear and a chuck wagon, we can access

(continued on page 8)

The Evolution of the Raptor Centre to an Avian Science And Conservation Centre

Dr. David M. Bird, Director
Macdonald Raptor Research Centre



David Bird, Director of the Raptor Centre, believes the Red-Shouldered Hawks in Quebec are imperilled by loss of woodland habitat.

With the recent transfer of its highly successful public education program to the Ecomuseum and a prior translocation of the raptor rehabilitation program to the veterinary school at Ste. Hyacinthe, some might conclude that the Raptor Centre is on its last legs. Nothing could be further from the truth!

Each of the above translocations made good sense because they widened the resource base and put the programs into the hands of enthusiastic specialists. Moreover, they have permitted the centre to focus on its strengths in teaching and research. In other words, while the centre has narrowed down the variety of its programs, it has, in turn, broadened its overall objective to include all species of birds, i.e., to become the Avian Science and Conservation Centre! The specific goals of the newly proposed centre include both pure and applied research, captive breeding of endangered species, and teaching students at the post-CEGEP level.

To date, the colony of captive-bred American kestrels has attracted world-wide interest. Just in the last three years, the following have benefitted from the colony's existence: 4 McGill professors, 8 professors from other universities (5 outside Canada), 4 government scientists (1 outside Canada), 1 private sector scientist outside Canada, 15 graduate students from McGill University, 4 graduate students from U.S. universities, 4 undergraduate students from McGill University, and 1 undergraduate student from a U.S. university. The significance of this has resulted in a 33 per cent increase in Natural Sciences and Engineering Research Council (NSERC) infrastructure support.



A female Peregrine Falcon stands guard on her artificial nest on Montreal's old Royal Bank Building.

Currently, centre staff are collaborating with Dr. David Anderson of the University of California at Davis to examine sibling dominance and sex ratios in birds of prey. From the same university, Dr. Michael Fry has used the kestrel colony to determine the effects of dicofol, one of the last organochlorine pesticides. A recent two-year study of the avicide, fenthion, in collaboration with Dr. Pierre Mineau of the Canadian Wildlife Service has

been completed. Dr. Manfred Rau of the Institute of Parasitology continues his experiments aimed at elucidating the role of endoparasites in the behaviour of avian predators. Both Dr. Barrie Frost of Queen's University and Dr. Jacob Sivak of the University of Waterloo are pursuing studies of the excellent visual capabilities of falcons. Dr. Michael Nicholls of the University of Kent at Canterbury is collaborating with centre staff in genetic research to determine why female birds of prey are larger than their male counterparts.

It is fully our intention to create an umbrella institute under which research involving captive breeding of other kinds of birds could flourish. For example, the waterfowl colony of Dr. Rodger Titman, the poultry farm of the Department of Animal Science, the psittacine colony of the Hagen Avicultural Research Institute in Rigaud, the Japanese quail colony managed by former B.Sc. student, Claude Rivard, and possibly others could benefit from such an arrangement.



Yves Pinsonneault, an undergraduate student at Mac, looks for identification markings on an endangered Peregrine Falcon nesting in southern Quebec as a follow-up to the captive breeding and release program.

Conservation must, however, remain at an equally important level. With peregrine falcons nearly reaching their former numbers after almost being wiped out due to the use of DDT, the centre has begun dismantling its captive-breeding colony. It is making way for yet another endangered avian species, the loggerhead shrike. No one is sure as to why the shrikes have declined so drastically in many states and provinces. It is our intention to establish a captive breeding colony for the

purpose of learning more about the species. To date, they have never been bred in captivity before.

Field research, too, will be an integral part of the new Avian Science and Conservation Centre. For his MSc degree, Simon Barrette is conducting a two-year study of habitat selection of the shrike, mostly in Ontario. Financing is currently being sought to conduct further research on loggerhead shrikes breeding in southern Manitoba.

Yet another endangered bird species in Canada has been targetted by the new centre. The Harlequin duck, a denizen of fast-flowing rivers, is disappearing over much of its range and no one knows why. A long-term study of its ecological needs is currently in the planning stages.

Depending on funding, detailed studies of paternity in wild American kestrels and merganser ducks will begin in the spring of 1991. There is growing evidence that some of the young of so-called monogamous parents may be the product of extra-pair copulations.

With so much already accomplished and with a fully equipped laboratory and a brand new mobile trailer to house administrative offices, the Avian Science and Conservation Centre is well on its way to becoming less of a dream and more of a reality.



On the desert trip students get an opportunity to see wildlife, such as this Fringed-toed lizard, at close hand.

(continued from page 6)

best recognized wildlife areas in the southern U.S. Padre Island National Sea Shore, Welder Wildlife Refuge, Bentsen State Park, Big Bend National Park, Cave Creek Canyon, the Arizona Sonora Desert Museum, Organ Pipe National Monument, and Canyon de Chelly make up the major sites which are visited on the trip.

Every trip is different, but there are a few things that we can count on. The collage is made up of scenes wherein students are delighted to see things like Scissor-tailed flycatchers, Javelinas, Alligators, Roseate Spoonbills, Armadillos, Possums, Chachalacas, and Copper-tailed trogons for the first time. On the other hand, we can also count on the shocked expressions of those encountering 15 to 20 cm millipedes or poisonous centipedes, or the shrieks which come with almost stepping on a rattle snake or finding a scorpion under a tent reflecting a



The old general store in Hot Springs, Texas, on the bank of the Rio Grande.

glow from a black lamp. Even the vegetation gets rave reviews, when students first see yuccas, agaves and cacti in bloom, but what is most striking is seeing the relief that is expressed when we leave the hot 35 to 40 degree dry desert floor and climb the 20 km into the Canadian life zone at 2,500 m where the snow still lingers.

Undoubtedly the Desert Ecology trip amounts to much more than an opportunity to add 10 or 100 bird species, or 40 species of reptiles and amphibians to a life list, or increase an individual's ability to identify many more plants and animals. The trip should give each a very strong sense of the ecological forces which have shaped this set of very different life forms. Finally, not only does it tie up a lot of loose ends that almost got lost during years at university, but it should give a new perspective to future thoughts and discussions concerning water conservation and ecology.

Endangered Loggerhead Shrikes

The expansion of the Raptor Centre into the Avian Science and Conservation Centre is heralded by the centre's first research foray into a non-raptorial avian species, the endangered Loggerhead Shrike. A better species could not have been chosen. Shrikes are known as "butcher birds" because of their habit of impaling their prey, e.g., mice and small birds, on hawthorns or barbed wire.

Unlike birds of prey, their feet are not strong enough to hold the food while they tear at it with sharp, hooked beaks.

Loggerhead shrikes are endangered in many parts of North America for reasons yet unknown. In 1990 only one nesting pair was found in Quebec.



Freshwater Fish Culture in Quebec

Professor Fred Whoriskey
Wildlife Resources
Department of Renewable Resources



freshwater fish farming in Quebec.

superficially, at least, Quebec seems a wonderful place for aquaculture. We have about 10 per cent of Canada's freshwater within our borders, and the huge United States market is right next door. However, we currently produce less than one per cent of Canada's freshwater fish harvest from either commercial fisheries or aquaculture. So how come everyone is talking about the aquaculture potential of Quebec, but very little of this potential has actually been realized?

There are a variety of reasons, of which the climate is one of the most important. Quebec has a fantastic annual temperature change. In northern areas where freshwater aquaculture is common, air temperatures peak in summer at about 32°C, and bottom out in winter at -35°C. Our market wants salmon and trout, but these fish are very sensitive to stress. They are so sensitive that they are routinely used as indicators of the harmful effects of chemicals in toxicity testing. One of the problems they like the least is high temperatures, and they start dying when temperatures exceed 25°C. Hence our summer growing conditions can limit production. Meanwhile, winter icing blocks the transfer of oxygen from the atmosphere to the water. Salmon and trout are also very sensitive to a lack of oxygen and in intensive rearing facilities risk suffocation in the winter. When sites ice over, farmers can't see or get at the fish to help them if something goes wrong. It is also very difficult or impossible to harvest fish in winter because of the ice cover.

The facilities get around these problems by growing farms in areas fed by ground water

springs. These springs run at temperatures of about 8°C year round. By controlling water flow rates, a farmer can manipulate temperature and keep its culture tanks cool in summer and unfrozen, or at least oxygen rich, in winter. However, there are not many of these springs available.

A second solution is to site the farm in floating cages in a lake and use an airlift pump to cool the cages in summer and keep them ice free in winter. We have been working with a farm, Salmonid Inc., in Labelle, just north of Mont Tremblant in the Laurentians, which is doing just that. Water is a peculiar element, and one of its most peculiar properties is that it achieves its maximum density at a temperature of 4°C. Thus water of this temperature sinks to the bottom of a lake. In lakes in summer, hot, low-density water ends up floating over the top of cold, high-density 4°C water, just as low-density oil floats on top of high-density vinegar in an Italian salad dressing. The airlift pump moves the cold water from near the bottom of a lake up to cool the cages, thus removing the temperature stress. In winter the same pump is used to move the relatively warm 4°C water (compared to -35°C air temperatures, that's warm!) up to keep the cages ice free. This gives the farmer access to the farm all year and permits adequate oxygenation of the water for the fish in the cages.

Environmental Concerns

Environmental impacts, broadly defined, are a second concern. Faeces and feed wastes from fish culture sites are deposited into the water. These wastes act as fertilizers, and in too large quantities they pollute the water. The pollution can lead to large algae blooms, which use up the oxygen, stressing and killing the fish the farmer was attempting to culture in the first place. In Quebec many lakes are nutrient poor, and a little fertilization can enhance the production of fish that anglers like to catch. Thus the wastes from fish farms in lakes could actually have positive benefits. The trick is to control farm

production so that over fertilization does not occur. Geraldine Cornel, of the Department of Renewable Resources, has been conducting her MSc research into the environmental impacts of fish farming. She is attempting to determine the number of fish a farmer can safely culture in a lake without having harmful effects.

Other important environmental concerns include the introduction of exotic species and genetic pollution. Rainbow trout, a mainstay of the industry, do not occur naturally in Quebec. There is evidence that rainbow trout will compete with and displace juvenile Atlantic salmon from rearing areas in rivers. Atlantic salmon sport fishing is an important industry in parts of the province, and various groups are opposed to the culture of rainbow trout because some will escape, possibly to areas where they could compete with salmon. Rainbow trout could compete with other species such as lake trout, or alter ecosystems because of their role as a top predator. We are now working on the biology of escaped exotics from fish farms. The MSc research of Eric Chaine, of the Department of Renewable Resources, has been investigating the ecology of rainbow trout "liberated" from the Salmonid Inc. operations, trying to identify the ecosystem impacts of the introduction of the rainbows, and the potential impact of this exotic on the native lake trout.

Genetic pollution occurs when domesticated stocks escape from a culture site and spawn with wild stocks. There is great fear that the introduction of "domesticated" genes into the wild populations, especially of Atlantic salmon, will cause the wild populations to become maladapted to their environment. In the worse case scenario, a formerly healthy wild population could be driven to extinction by the introduction of inappropriate genes.

These are just some of the problems besetting the development of aquaculture in Quebec. Technical problems probably can be solved with research. Other problems cannot be solved per se, and a decision must be made as to whether or not aquaculture proceeds based (continued on page 12)

The ECOMUSEUM: Provider of Wildlife on Campus

by Dr. J. Roger Bider, President
The St. Lawrence Valley Natural History Society
and Professor, Wildlife Resources



Black bear in a natural habitat.

One of the very attractive attributes of Macdonald Campus to wildlife ecologists is its setting. We are on a campus which is richer than most with hundreds of hectares of farm fields and woodlands dotted with ponds; a campus with access to the waters of the Ottawa and St. Lawrence rivers, both with rich communities of fish and both being major stopover areas for migrating waterfowl. It is a campus where one can bird-watch, turtle-watch, listen to the choruses of frogs and absorb nature, seemingly miles from the urbanization that surrounds it. Unfortunately, wildlife biologists cannot afford the luxury of simply sitting and observing. Eventually they have to form hypotheses and test them, and to do this they need controlled experiments. Healthy captive animals in large enough quantities are what the behaviorist needs for those well-designed experiments and this is where the ECOMUSEUM fits in.

Through a cooperative adventure with Macdonald, the non-profit St. Lawrence Valley Natural History Society has been developing the ECOMUSEUM on what was formerly a land fill and dump site on campus. The 11 ha recycled piece of land, which lies between the wildlife area and chemin Ste-Marie, west of the Lods Research Centre, is particularly well suited for this kind of development. It encompasses a semi-isolated area which is used for services, has the remnants of a marsh, and enough topography to have a functional gravity water system, and interesting animal habitats.

Visitors to the site see spacious habitat enclosures for deer, bear, coyotes and raccoons, as well as a half acre walk through waterfowl aviary, turtle pond, snake pit, and fish pond. Some walk along the marsh walk, rich with plants and miniscule aquatic animals. Preschoolers enjoy puppet shows and contact with some of the animals in a small covered amphitheater. Other visitors prefer to get closer to the animals and head to the service area where they can get close to museum favorites,

such as Jessie, the fox, or the displaying tom wild turkeys.

In June of 1990 the Society accepted the responsibility for the raptor education program of the Macdonald Raptor Research Centre. Until adequate facilities are ready at the ECOMUSEUM the onsite activities will continue to take place at the Raptor Centre. However, the addition of this facet of our fauna is truly exciting because we will be able to keep our information fresh and in tune with the happenings of the research community in this field.



Anne Myles, Mayor of Baie d'Urfé, holding a tame skunk, with Dr. Roger Bider, President of the St. Lawrence Valley Natural History Society.

Not all displays relate to animals, nor is the development of the site completed. Throughout the area are displays on recycling, eco-friendly tips for consumers, and plant identification. Nearing completion are habitats for wolves, caribou, porcupines, and salamanders.

By summer, new displays on soil pH and acid rain, along with one describing the design of the prototype windmill and how it supplies us with our every day needs of water will all be completed.

To post-secondary students and researchers the ECOMUSEUM provides a whole array of opportunities. It provides for the care of animals which are used for behavioral studies both on and off site. It provides space to set up outdoor controlled ecological experiments, develops, in cooperation with staff members, special facilities, such as our underwater observation pond to study the behavior of fish and turtles under ice. It maintains a collection of animals useful in the teaching of a broad variety of subjects such as: animal rights, outdoor education, science education, natural history of the vertebrates, herpetology, and landscape architecture. It provides facilities for animals used in research projects at the undergraduate as well as the graduate level.

In 1990 alone, the ECOMUSEUM provided support for the research of eight students. Patrick Galois is using the facility for his PhD research on the predatory behaviour of raccoons and skunks on turtle nests. At the MSc level, Mike Richardson and Lucie Roy have been doing research on feeding behavior and strategies of goldfish and red spotted newts. Carol Tisdall has begun a research program on mallard and black duck behavior. In the last case the ECOMUSEUM is caring for 60 ducks involved in that experiment. In addition to the graduate programs four undergraduates carried out their final year projects on the site.

In the few short years the ECOMUSEUM has been in operation it has provided services not only to Macdonald departments but, in 1990 for instance, it provided special theme tours to a variety of other educational institutions. CEGEP Ste-Anne-de-la-Pocatière and the Department of Biology (McGill) came for herpetology. A class from the Faculty of Education (McGill) spent the better part of a day on site working on program development in outdoor education. Three different courses

Elk Research in Animal Science

by Guillermo Gallo, DVM., PhD
Research Associate
Department of Animal Science

ught at John Abbott College used our facilities for labs. A landscape architecture class from the Université de Montréal carried out a design practicum on the site which was enormously popular with the students. A class at Vanier College came to us to get insights into animal management and wildlife parate problems.

the full and part time staff who work at the ECOMUSEUM have, for the most part, been people who are students or have graduated from Macdonald. In the summer of 1990 we had 11 people working for us, nine of whom were from Macdonald. Not that this is a prerequisite to work for the ECOMUSEUM; however, the proximity of the two facilities gives many students the opportunity to participate as volunteers in our activities and, of course, it is these people who get the first opportunities when openings occur.

the future, depending largely on the ECOMUSEUM's financial capabilities, we have the possibility of several new linkages with Macdonald. The ECOMUSEUM now provides a 48-hour course in natural history and ecology of the St. Lawrence Valley to its students in training. This could be turned into a reasonable course for credit either from the Faculty of Agricultural and Environmental



Deer enjoy a spacious enclosure.

Sciences or from Continuing Education. Other courses which could be developed would be zoo and aquaria design and management for animals or animal behavior in a captive setting. To work with, observe, care for, and handle animals are valuable and rewarding experiences which certainly make better wildlife ecologists. We hope we will be able to accommodate a credit apprentice program at the ECOMUSEUM in the near future.

The Society's 10th anniversary is in 1991, and we will have 10 special events to celebrate the occasion. These, of course, will include our highly successful Annual Duck Release which was initiated last fall. In this case we had a silent auction of the birds to be released. On a Saturday morning in late October the successful bidders came to release their birds which had been orphaned as ducklings earlier in the year.

To participate in these and other activities or to become a member of the Society all you need to do is call the ECOMUSEUM at (514) 457-9449. The ECOMUSEUM is open to the public from 10 am to 5 pm every day of the week from April 15 to November 15.



Bull wapiti

Dr. Bruce Downey, Chairman of the Department of Animal Science, is in the process of signing a two-year contract on behalf of McGill University with Wadacrf International Inc. to conduct research on wapiti (North American Elk).

Wadacrf International, which has a farm in Lachute, is involved in the promotion of game farming in Quebec. The main interest is the introduction of wapiti (from western Canada) and red deer (from Australia), as commercial activities, to areas where other domestic species cannot be reared. Wadacrf International have concluded that the use of artificial insemination and embryo transfer techniques will be extremely useful for accelerating the adaptation of these foreign species to their new habitat.

The objective of the project is to develop methods for the collection, handling, and storage of semen and embryos from wapiti. The semen and embryos can then be used in elk and in red deer as they belong to the same species (*Cervus Elaphus*) and, therefore, they naturally cross-breed. The collection and evaluation processes will be carried out at the company farm and the cooling and freezing at the Large Animal Research Unit on the Macdonald Campus. Eight experiments (four with semen and four with embryos) have been planned to determine the best procedures to be used. Collaborators with Dr. Downey in this project will be the author as Research Associate, and Denise Laurin as laboratory technician. It is anticipated that the data collected will be used by Eiji Fuku in his PhD thesis.



Raccoons - for researchers to study and visitors to enjoy.

Blessing of the Birds

by Hazel M. Clarke



Diane Mically and Cachet relax in Tadjia Hall, the Faculty Club at Macdonald.

The annual blessing of the birds at the Raptor Research Centre is one more thoughtful gesture in the life of Diane Mically, a young woman who fills her days with volunteer efforts to bring comfort and joy to others.

On or near October 4, the feast day of St. Francis of Assisi, patron saint of animals, Diane has arranged for Monsignor Mooney, of St. Edmund's Church in nearby Beaconsfield, to visit the Raptor Centre and bless the birds. Diane hopes that this blessing, carried out for the two years that she has been living near Macdonald, will become a tradition and that, time permitting, it might even extend to the Ecomuseum. Diane is particularly enthused about the annual blessing because it brings together two important elements in her life: the church and birds and animals.

Diane, who has been blind since the age of four, travels to her voluntary tasks and other commitments with the help of her guide dog Cachet, a Golden Retriever that she has had

since June 1983 when they trained together in Morristown, New Jersey. Cachet was only 16 months old at the time, and over the years a tremendous bond has grown between the two. Cachet interestingly enough also made life a little easier for a blind kestrel a couple of years ago. She provided a soft spot for landing!

As Diane is particularly fond of birds, she did some voluntary work at the Raptor Centre soon after coming to the West Island. Most of the work that was done by volunteers is now performed by students and either full or part-time staff, but that summer Diane was able to do some telephone work and feed baby kestrels. The biggest challenge for Diane was to keep a blind kestrel alive, to feed it and get it to fly without hurting itself. She worked with that kestrel, which she named Odilia, after a patron saint of blindness, both at the Centre and at home, from mid July to mid September and kept a daily journal of its progress.

"It was a great learning experience for me," Diane said. "I didn't know how much I could show her, but with time and patience we succeeded. Odilia learned many aspects of life from the school of hard knocks, but once she had found that Cachet was a soft spot for a landing, she never hit the floor again. She's with the colony of kestrels at Macdonald and when it's feeding time, she's at the door waiting for her hand-delivered meal."

Born in Pickering, Ontario, Diane went to a boarding school for the blind in Brantford. It was there that Diane developed her love of music, particularly sacred and choral. She has studied flute and piano but especially enjoys singing in choirs. Diane returned home for grade 13 and then attended Trent University in Peterborough where she obtained a BA in French. Computer trained, Diane liked networking for Oxfam, Amnesty International, and Ploughshares while in Peterborough, but thoroughly disliked being couped up indoors with a computer all day. More to her liking was working on the college radio station where everything from sustainable development and environmental issues to classical music was discussed. Radio is a

blessing for blind people, such as Diane, and she says she relies on public service announcements to keep her up-to-date with what is happening in the area.

Diane would like part-time wildlife rehabilitation work, but is well aware that some people are afraid to work with the blind. "They are afraid of the unknown," she said. With guidance and training, she feels she would be very comfortable working with small birds, for example. Meanwhile, she looks after her own pet birds, does voluntary work for St. Edmunds and for various women's shelters and practices and sings in four different choirs in the West Island-Montreal area. By most people's standards, Diane leads a full and busy life. One never knows, however, when a public service announcement on radio or a suggestion from a friend will find Diane and Cachet setting off on a new challenge to help others or to enrich her own spiritual or musical life. Certainly one spiritual uplift for her will be the blessing of the birds at the Raptor Centre later this year.

(continued from page 9)

on risk assessments of potential negative impacts, and cost-benefit analyses. This will be an exceptionally difficult debate. Well-managed aquaculture sites are almost the ideal "sustainable development" industry. In the right sites, the farms could operate and produce the food we need with little or no negative impact. However, not all farmers will be good managers. Quebecers are expressing great concern about preserving what is left of the natural environment, and there is little desire to take any risks with new industries. The tension between economic development and conservation also puts provincial ministries with conservation mandates (Ministère du Loisir, de la Chasse et de la Pêche, Ministère de l'Environnement) on a collision course with those pushing for development (Ministère de l'Agriculture, des Pêcheries et de l'Alimentation). The debate has just begun, and it will be long.

Agriculture and Wildlife: Can They Coexist?

Hazel M. Clarke



Professor Roger Bider, centre, shows a group of Farm visitors electric fencing being tested around the Wildlife Area.

Professor J. Roger Bider came to Macdonald the first Wildlife professor in 1965. In a brief interview we discussed a wildlife biologist's role in an agricultural faculty and the impact of agriculture on wildlife.

"This is a great place to practice wildlife biology and management," Professor Bider said. "Wildlife has traditionally done well in either agricultural or forestry faculties. These are very project and problem oriented in their philosophy and the same is true for wildlife. This is the kind of atmosphere we need for wildlife management students."

Professor Bider pointed out the excellent rapport that has always existed between staff from agricultural and environmental programs and those in wildlife. Agricultural engineers, animal scientists, the farm staff, and others have worked with the wildlife people on joint research and other projects. For example, at present, Dr. Urs Kuhnlein, in the Department of Animal Science, is working with Dr. Bider and one of his PhD students, Simon Nadeau, on a fingerprinting of muskrats. As more interest is taken by departments such as Animal Science in wildlife production and management, i.e., elk or deer farming, wildlife resources could become an even stronger component in the faculty.

"As well," Professor Bider continued, "working in an agricultural faculty gives us understanding of agricultural problems. It makes it easier for us to understand the farmer's point of view, particularly on projects

that we wildlife people want to implement on agricultural lands. For example, we are concerned about wetlands and drainage, but we also have to understand how the agricultural community feels. Since agriculture is one of the main utilizers of land here in the St. Lawrence Valley, we have to see that the two coexist."

Professor Bider was quick to point out that in many cases wildlife is a nuisance to agriculture. "If you come right down to it," he said, "most wildlife can be a real pain in the butt to farmers. Coyotes and sheep, blackbirds and corn, deer and apple orchards: these are real concerns, but I don't feel that farmers are against wildlife until one or another species actually does damage. Some farmers like to hunt; others wouldn't touch a gun. Many appreciate the insect-eating birds in their orchards; others know that muskrats keep their ditches open. By and large I would say that farmers' attitudes are very positive and that given the opportunity they will support conservation programs."

Animal Deterrents

I remember several Journal articles in the mid '70s and early '80s on the extensive research that was done with blackbirds and corn. Over the years Professor Bider and others in Wildlife at Macdonald have looked at various wildlife control methods. One of particular interest to farmers is electric fencing.

"We have had a long-standing interest in the use of electric fencing for animal control," Professor Bider pointed out. "Electric fencing for deer has been tested, but so far we are not satisfied with the results." He said that different types of electric fencing are also being tested by farmers - Robert Laberge, a sheep and beef farmer in Richmond, is one who is looking at the results.

American products must be tested for efficacy in Canada before they can be put on the Canadian market. Professor Bider said that the United States tests products to make sure that they are safe for humans but not necessarily to see if the product works.

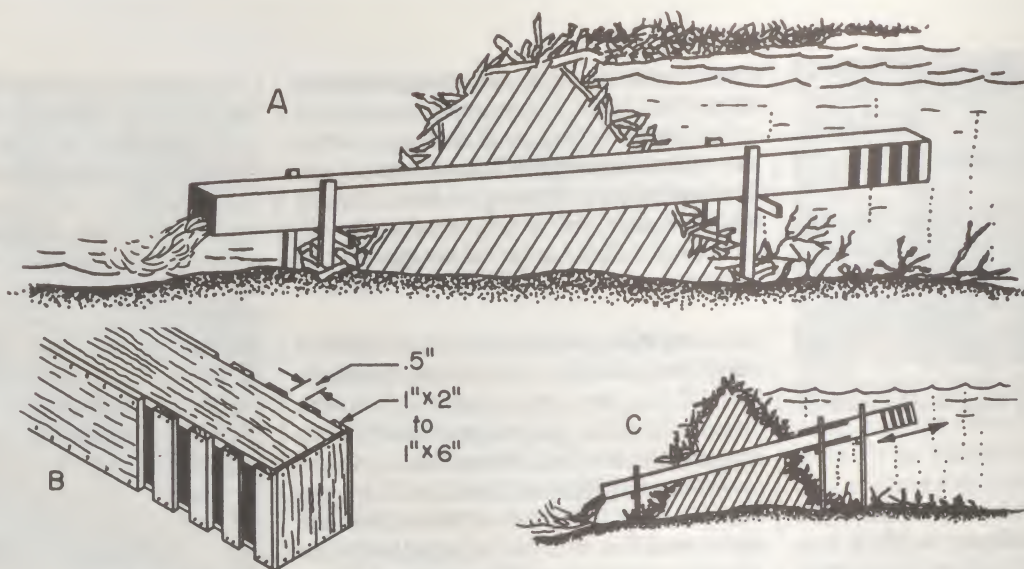
"We receive a number of these products to test," he said. "Most are being sold as deterrents, and we have had little success with them. We have tested ultrasonics for rodents with no success whatsoever. We have done work for fertilizer companies trying to find additives that would discourage squirrels and other animals from digging up bulbs. We have been trying to find materials that would deter porcupines from eating outbuildings. We have not had much luck, but we learn as we go along. We do find that some of these products are species specific: good for one small group of animals and useless for others."

Professor Bider did say that one product he tested is great for deer and has potential to lessen damage done by other animals. The product is expensive so its use would depend on the quantities needed. It could be practical in a nursery where there are high-priced trees. Outside trees in an orchard could be sprayed, but in large orchards fencing is probably the better solution.

"There is no government - NSERC - money for this type of research," Professor Bider pointed out, "so we will continue to work with companies. It would be nice, however, to have base funding to support the animals which are used for the tests."

Wildlife Concerns

"Our biggest concerns with agriculture are the loss of wetlands, the development of drainage ditches, which can become ecological traps, the clear cutting of old mature woodlots and the careless use of pesticides," Professor Bider said and continued, "I'll give you just one example. After years and years of putting up bluebird boxes, the first lot of bluebirds came and installed themselves right up on the third fence post from the entrance to the wildlife research area at Macdonald. We had three little bluebirds. They were beside a corn field. It got sprayed and the next day the young bluebirds were dead. We should have blocked off all those bluebird houses next to the corn field. Eventually they will grow alfalfa and then we can have bluebirds, but in



Illustrations by Steve Tinker

that rotation we can lose a whole generation of birds simply because of the spraying. We used slugs from a greenhouse to feed two snakes at the Ecomuseum. Within 12 hours the snakes were dead."

In many cases, agriculture-wildlife coexistence is a matter of good management. Several years ago an article by Professor Bider was printed in *The Macdonald Journal* on controlling the water levels in beaver dams. Requests coming into Wildlife for this information have been so numerous that he has revised the plans for inclusion in this issue.

Outsmarting the Beaver

Several years ago wildlife biologists in New England came up with a simple solution which is often very satisfying because it proves that man can be smarter than beaver. If you have a situation wherein you would like to lower the water level in the beaver pond to either a comfortable level for both you and the beaver or a level which is comfortable to you but uncomfortable to the beaver, the following technique is what you need.

Take apart the dam and install a pipe or wooden box as depicted in Figure A. The discharge end of the box should exceed the dam by about 10 feet, whereas the inlet should

be 15 to 20 feet in front of the dam. As soon as you have installed the box, the beaver will come back to repair the dam, but they will never figure out where the leak is. The important feature of the structure is the slatted water entrance into the wooden culvert (Figure B). The idea is to have a lot of little narrow slots or holes over a long distance so that there is no great suction at any one point. If, for example, just a wooden box were built, the beaver would find the end and simply drag a few big branches over and stuff the hole as they often do to road culverts. Keeping the intake end at least a foot off the bottom keeps the end from silting in and makes the system more difficult for beaver to figure out. The size of the culvert depends on the level of management you want to attain. If you want to stabilize the water at a minimum level, you can put in a culvert equivalent in diameter to the culvert under the first road the stream intersects. In this case a 12" road culvert would correspond to a box 11" X 11" or 2, 8" X 8" units, or 9 4" pipes.

Because culverts are always designed to handle spring melt conditions, beaver boxes would normally be made about one third the cross sectional area of that of the road culvert. In this case for a 12" culvert make the box 6.5" X 6.5" or use 3 4" pipes. The number of slots can be important. It is best to have the business end of the beaver culvert under

water at all times; therefore, make the slot area smaller than the cross section area of the culvert. In the smallest 6.5" culvert you would be best to space slots at .5" rather than 1" and only have 5 or 6 openings on each side. In this way the water would find a level around the top edge of the box under normal conditions and rising higher than the box end during rain storms and when the water is high. Remember that if the box sticks out of the water too often, particularly in the late summer and fall, the beaver might find it more easily. If this is a problem, just block some slots till you get the desired water level. If you are a backyard beaver buff - that is, you like to have beaver around, but you would like to manage the water level to your liking - you can install your culvert with a fairly steep slope and make the intake end larger so that it fits around the main culvert as a sleeve. If you want to raise the water, you pull out the sleeve; if you want to lower it, you push it down (Figure C). If the water is too low in late summer, the beaver will undoubtedly move on and build a new dam for winter.

Finally, if you are worried about a few choice trees or you only want your woods thinned by the beaver, you can protect the trees with wire fencing. Wrap several layers of poultry fencing around the trees to a height of 36" and this should save your favourite specimen trees.

Mac International

Nile Perch in Lake Victoria

by Professor Fred Whoriskey
Wildlife Resources
Department of Renewable Resources



Professor Fred Whoriskey
holds a Nile perch caught in
Lake Victoria.

Lake Victoria, East Africa, a massive water body at the heart of Africa's Great Rift Valley, bordered by Uganda, Kenya, and Tanzania and covering an area of 68,800 km², is one of the five largest lakes in the world. An extraordinary diversity of fish species, principally small cichlids, inhabited the lake.

Scholars from around the world studied them, trying to determine how and why so many species evolved in this place in such a short time. For the one million fishermen who depended on the cichlids for food and livelihood, the science was far less important than the catches that the lake produced.

All of this is changing now. Sometime in the late 1950s or early 1960s, a new fish, the Nile perch, was added to the lake. There are conflicting stories as to why the introduction occurred. One improbable scenario, sworn to by God's truth by the person who told it to me, was that another country's secret service made the introduction to destabilize the notorious regime of Idi Amin in Uganda. Most probably was done by fishery managers in an attempt to create new fishing opportunities. Whatever the reason for the introduction, the Nile perch has arrived to stay. Its success has been an ecological disaster on the scale of the deforestation of tropical rain forests and at the same time an economic boon to the fishermen of the lake.

Of the 300 or so cichlid species, it appears most are now extinct. Nile perch weighing over 10 kg have been captured, and each day it takes a great many cichlids to feed a 200 kg Nile perch. The Nile perch expanded into all parts of the lake, so there were no refuges to which the cichlids could retreat. The constant predation pressure has driven them to extinction.

Fishermen were horrified at first by the appearance of the Nile perch. Previously the largest fish they caught in Lake Victoria weighed about 10 kg. Their lightweight fishing gear was being torn to bits by the new giants. Even when a fisherman did land a catch, the fish was too oily to be sun dried and had to be smoked. This was expensive, and started to cause deforestation problems as wood was harvested for smoking, which led to erosion, which sent sediments running down into the lake, causing turbidity and nutrient enrichment problems. International aid agencies, principally from the European Economic Community (EEC) and especially Norway, have mounted crash programs to reequip the fishermen with adequate fishing gear and to find more efficient preservation mechanisms. An export market has developed for Nile perch, earning foreign currency. Fishermen are now making more money than they ever have, and they call the Nile perch the "money fish."

The problem is: no one knows how long the Nile perch fishery can be sustained. This is where Canada, through the International Development Research Centre (IDRC), is playing a role. Through McGill International, I have been assisting IDRC and the Tanzanian Fisheries Research Institute (TAFIRI) with a research project which is monitoring Nile perch growth patterns, catches and, most importantly, the food supply. The food that is left for the Nile perch consists of a shrimplike animal, a small minnow (called "dagaa"), and other Nile perch. There is a disturbingly high incidence of Nile perch cannibalism, and where the young recruits are being eaten at a high rate by old fish, you cannot maintain your fishery.

There are no easy technological solutions to problems of this scale and magnitude. The disasters following the introductions of exotics in our own Great Lakes have shown us that. We are at the mercy of whatever new ecological balance will be struck in the lake. Our research will help provide some idea of what this balance will be. It will also serve as an early warning mechanism, perhaps giving some time to the fishermen to adjust to the next great shock the "money fish" will bring when its population collapses.

Symbol of Cyprus



At the time of writing, Professor Roger Bider of the Department of Renewable Resources, expected to travel to Cyprus. Unfortunately, because of the Gulf War, his trip was cancelled. The purpose of the trip, which had been planned for some time, was to visit his PhD student, Terry Hadjisterkoti, who is chief game manager for western Cyprus and is also managing a population of mouflon.

Professor Bider said that the mouflon, which is a national symbol of Cyprus, is a wild sheep somewhat similar to our own big horn sheep - except for the horns. Instead of going up and curling around and coming out towards the front, the mouflon's horns go out to the side and back in towards the neck. The problem in Cyprus is that they are an endangered species. The animals used to range throughout the country but in the last few years, particularly since the war years of the 70s, the mouflon have retracted back to the Troodos mountains.

There are three groups interested in the mouflon: hunters, farmers, and conservationists. As the only big game in the country, it is prized by big game hunters and there is pressure, despite it being endangered, to open up the hunt for these animals. It is also a pest. Though mainly in the mountain areas, there are some populations in forested areas close to vineyards and orchards. It can be argued that if the population of sheep in those areas is decreased, there will be less of a problem, but by how much should the population be decreased?

"It is a good mix of a problem," Professor Bider pointed out. "conservation, agriculture, hunting. We have to get a management program in operation that will incorporate all the views."

As his trip was postponed, Terry and Professor Bider will have to work via correspondence on some management problems demanding immediate attention and, for more far-reaching solutions for the mouflon, Professor Bider hopes to reschedule his trip to the island country in the Mediterranean as soon as he can.

Beyond These Gates

Has Wildlife Got a Career for You!

The career paths that Wildlife graduates have chosen have been many and varied, and we are fortunate that the Wildlife staff and fellow graduates have kept up-to-date with the current activities of a good number of them. Many have gone on to further studies, here and elsewhere; not all have pursued a career in the wildlife area but most have. What follows is an interesting selection of the paths chosen by a cross-section of Mac's Wildlifers.

The far north has beckoned several: Patt Hall Weaver, BSc'80, is working with marine mammals for Fisheries and Oceans Canada in the western Arctic and High Arctic. Patt is based in Winnipeg. Rick Baxter, BSc'73, is working in northern fisheries. Stanislaw Olpinski, MSc'86, is in the fisheries division of Makivik Corp in Kuujuaq (formerly Fort Chimo), Que.

Also planning on working with Matavik, is Bill Doidge, who received his BSc(Agr) in '79 and PhD in 1990. (Bill Doidge wrote "Polar Contrasts" for our Northern issue, November 1989.) Lorraine Tetrault, BSc'89, is doing consulting work in the James Bay area, while Robert Carré, BSc'90, has returned to the family's outfitting business in Labrador. Another BSc'90s grad, Timothy Quinn, is up north working on land use planning using satellites.

Challenging careers with such wildlife organizations as Canadian Wildlife Service (CWS) and Ducks Unlimited have attracted such grads as Robert Bailey, BSc'72, MSc'75, PhD'82, who spearheaded the Canadian Wildlife Service's participation in the North American Waterfowl Management Plan. Raymond Sarrazin, MSc'69, is Eastern Manager (Quebec City) for the North American Waterfowl Program. Ray Alisauskas, BSc'80, is a research scientist with CWS in Saskatoon; also in Saskatoon, doing contract work for CWS, is Mark Wayland, BSc'81. Laird Shutt, BSc'80, is with CWS in Ottawa and Jean-François Bellemare, BSc'84, is in Quebec City.

Ducks Unlimited has attracted Rick Wishart, BSc'71, MSc'73, who is in Winnipeg, Man., as is Harry Markin, MSc'79, and Shane Gabor,

MSc'91. Gary Stewart, BSc'74, MSc'77, is with Ducks Unlimited in Edmonton, Alta. Bill Chappell, BSc'76, MSc'82, is the Area Manager for northern Saskatchewan. He is in North Battleford, Sask., as is Jordan Ignatiak, MSc'91.

Several Macdonald Wildlife students came from the Wildlife Technician's Program at the Vanier CEGEP in Montreal: Birgit Schultz, BSc'83, MSc'87, who is working in Plant Science here at Macdonald, and the "spirited and lively" David Shutler, BSc'84, MSc'87, who just finished his PhD under Dr. Pat Weatherhead at Carleton and plans to continue post doctoral studies at Western. David's work has been in behavioral studies of birds.

With Fisheries and Oceans is Tom Rutherford, BSc'79, who is working on salmon enhancement in the Queen Charlotte Islands, B.C. Also working in aquaculture in B.C. is Bob Gransden, BSc'79. Managing a fish farm here in the Laurentians is Michael Patterson, BSc'90. Fisheries and Oceans also have Michael Hammill, PhD'88, who is at the Maurice Lamontagne Institute in the Gaspé. He is working with seals.

Further studies ended in a career in veterinary medicine for Graham Child, BSc'76, who has his practice in Timmins, Ont., and Bob Hylands, BSc'77, who is in Montreal.

Teaching and research has attracted several Wildlife grads. Bill Vickery, MSc'73, PhD'76, is a Professor at the Université de Québec à Montréal. Dale Blakely, BSc'76, teaches in a high school in St. Eustache, Que. Alison Bentley, BSc'77, lives in Hudson, Que., with her husband and family and does a lot of public education on the environment and wildlife with Brownies, school groups, and so on. Norman Seymour, PhD'77, is at St. Francis Xavier University in Antigonish, N.S. Lucia Perillo, BSc'79, is in Washington State. She teaches environmental topics, is a keen rock climber and a published poet. Nicholas Gard, MSc'89, is conducting research on toxicology in birds at Clemson University in South Carolina. Katherine Hunt, MSc'90, is also at Clemson doing similar work. Charles (Hoagy) Schaadt, PhD'89, is Director of Wildlife

Programs at the Du Bois campus of Pennsylvania State College.

The National Capital Commission in Ottawa attracted Allan Alexander, BSc'76, who is working in Gatineau Park. Another BSc'76 grad, Remo Pasteris, is with the Commission. Johanne Bérard, BSc'84, is with the Montreal Urban Community's planning and development of regional parks section.

Consulting and contract work is done by a great many graduates including Kenneth Morrison, BSc'75, MSc'83, who is also working at the University of Sherbrooke. Sylvie Matte, BSc'87, is doing contract work for the St. Lawrence Valley Natural History Society. Josée Brunelle and François Noisieux, both MSc'87, are doing wildlife consulting work; The Quebec-Labrador Foundation (QLF) hires a number of Mac grads for contract work; Marie-Pier Dionne, BSc'90, is developing educational materials and programs with the Jamaica Conservation and Development Trust.

A doctor and a dentist: Charles (Chuck) Smith, BSc'79, is a medical doctor in Montreal, and Roger Bélanger, MSc'82, is practicing dentistry. To round out still more interesting careers, Ross MacCullough, BSc'73, is the herpetological technician at the Royal Ontario Museum in Toronto. Bill Brodie, BSc'77, is radiology manager, Neuroradiology, Montreal Neurological Institute and Hospital. Grant Bracker, BSc'78, is doing remote sensing-analysis of the environment from planes and satellites. James Duncan, MSc'85, is completing a PhD at the University of Manitoba. He's working on Great Gray Owls.

Here on campus or nearby, Peter Knox, BSc'74, is supervisor of grounds, roads, and protection services. Ian Ritchie, BSc'79, is curator at the Raptor Centre. Rose Marie Chretien, BSc'83, who is a docent here at the Ecomuseum, has since graduating, worked with endangered species in the Maritimes, for the zoo in Granby, Que., and is now on contract with the Ministry of Natural Resources in Ontario. Stéphanie Poulin, BSc'90, is with the St. Lawrence Valley Natural History Society, as is, part-time, Richard van Ingen, also a BSc'90s grad.

Robert G. (Bob) Clark, BSc'75, MSc'79, PhD'85, lived in Senneville and stayed on the Macdonald Campus to attend primary school, high school, CEGEP, and then university from his BSc through to the PhD. While here he distinguished himself as a rugby athlete and as the most popular individual. Upon graduation from the Wildlife Resources major, Bob became a driving force behind our research program investigating the ecology and potential control of red-winged blackbirds in corn. His Master's work measured the attitudes of Quebecers toward environmental activities and agricultural pest control, and his PhD studies considered the effects of agricultural land use on the biology of the red-winged blackbird. To counter the effects of his Macdonald brainwashing, Bob attended Arizona State University while proceeding toward his doctorate. Very shortly after his return from Arizona, Bob married Teresa Zabek, BSc'81. Before completing his PhD thesis Bob went to Saskatchewan with Hamilton Greenwood, PhD'85, to work under contract with the Canadian Wildlife Service on duck depredations on prairie grain crops. This work led him to assume a position as research scientist with the Prairie Migratory Bird Research Centre in Saskatoon. Bob and Teri now live there with their three children, Robin, Jan, and Devon. Bob has still retained a connection with Mac serving as adjunct Professor in the Department of Renewable Resources and supervising graduate students. Mark Gloutney, BSc'86, is a PhD candidate working under Bob's supervision at the University of Saskatchewan.

A good example of a person who has made the most of his education at the Macdonald Campus of McGill University is **Stephen Burgess**. First obtaining a BSc in Wildlife Resources in 1976, Steve stayed to complete a MSc in the same field in 1978. His study of mink predation on stream trout under Professor Roger Bider helped persuade André Marsan and Associates, a subsidiary of Lavalin, to hire Steve as a wildlife biologist carrying out impact assessments in Quebec. In 1982 he took on a job with the National Energy Board in Ottawa where he quickly rose from an environmental scientist to his current position as chief of regu-

latory affairs in their environmental branch. In this role Steve ensures that the procedures of the National Energy Board are consistent with those of the federal environmental policy.

From Wildlife Biology to Designing Wildlife Habitats, **Stefan Sobkowiak** obtained a BSc in 1983 in Wildlife Resources and an MSc in 1987 working with Professor Rodger Titman. In 1990 he completed a MSc in Landscape Architecture (MLA) at the University of Guelph on "increasing and decreasing wildlife in urban and suburban areas: a designer's guide." Stefan combined two interests: wildlife biology and landscape architecture to create Bioplan, a design and consulting company specializing in designs to encourage wildlife in cities, suburbs, and the country. He is based in Verdun, Que., and can be reached at (514) 767-4335.

What does a wildlife officer in the SPCA in Montreal do? "Everything!" says **Christiane Roy, BSc'90**. She says that every season is a new adventure. When she is not nurturing baby raccoons in the spring or caring for injured animals, she is desperately trying to catch a beaver near a train station in Pointe Claire or running after domestic ducks in the cold of the winter. She said that helping people deal with urban wildlife and playing an important role in educating the public on such matters keeps her very busy. Conferences, teaching, rehabilitation, finding homes for exotic species are all part of her job as well. Another is inspecting the well being of captive wildlife and seizing those that are being mistreated can often be very time-consuming. "Taking care of a Barbary macaque, a jaguar, and three beavers is not easy work, but I enjoy it," Christiane said in summing up her career.

(When **Martin Silverstone** was asked if he would contribute to this special on Wildlife, he had to "confess" that he was not a Wildlife grad. He may be General Agriculture 1977, but we think you'll agree his career and lifestyle make him a "Wildlifer" at heart.)

When I graduated in 1977, I was already working as a sessional technician in Wildlife on a project to estimate and suggest control measures on red-winged blackbird damage on agricultural crops in southwestern Quebec. We spent much of that first summer travelling all over the province in a converted Labatt's 50 beer truck setting up a large "light trap" to capture and band thousands of blackbirds. I spent each winter travelling: in 1979 I visited a Wildlife graduate, Bob Clark, in Arizona with fellow graduates Serge Blondeau and Jack Domaradzki. Bob was working on turkey vultures and the week spent there was extremely interesting.

In 1980 I worked on the North Shore of Quebec on a salmon study. I travelled from river to river collecting part - often having to hitch-hike rides on float planes because of the isolated area and our own restricted budget. From that fall until 1983 I worked on environmental impact studies, including the spraying of spruce budworm and various pipeline and hydro lines with André Marsan & Associates, the environmental arm of Lavalin Inc.

From 1984 to 1985 I worked as an environmental inspector on a pipeline project, enforcing environmental norms that had been set to minimize damage to farmland and wilderness areas.

In 1986 I was hired to work on the Royal Commission on Seals and the Sealing Industry in Canada under Justice Albert Malouf. I worked on this for two years: first researching all aspects of seals and sealing and staying on to help write and edit the report.

Following completion of the report in the fall of 1986, I went out West and got hooked on back country Telemark skiing, something I continue to pursue every winter.

Returning in February of 1987, I worked as an assistant editor for a medical publishing company and when chance came in 1989 to get back into the environment field, I jumped. Now, using my experience gained in various wildlife jobs and as an editor, I work for the Atlantic Salmon Federation as editor and ad-

(continued on page 20)

Two Hats: One Rewarding Career

by Hazel M. Clarke



Rod MacRae, then PhD student here at Macdonald, Professor Roger Bider of the Department of Renewable Resources, and Nathalie Zinger, three of the speakers at AQREM's morning seminar.

Two environmental seminars took place at last year's 10th annual convention of AQREM (Association of Quebec Regional English Media) which was held at Macdonald. One speaker participated in both seminars "Problems and Solutions at the Community Level" and "The Politics of the Environment." Nathalie Zinger, BSc(Agr)'81, wears two hats. At the morning seminar she spoke about the work of the Quebec-Labrador Foundation (QLF), and in the afternoon she discussed the Endangered Species Program of the World Wildlife Fund (WWF). She also consented to be interviewed for the Journal.

Nathalie, who in 1981 was the first Macdonald graduate to be hired by the Quebec-Labrador Foundation, is now the Director, Quebec Projects. She is based in a Montreal office which was opened only last year. In the same location Nathalie divides her time between QLF and the World Wildlife Fund.

The Quebec-Labrador Foundation

Created about 30 years ago, QLF is a non-profit Canada-United States organization whose purpose is to improve the quality of life and the environment of rural areas in eastern Canada and northern New England. Back in the early 60s, the Reverend Robert Bryan conducted a ministry to families living in isolated fishing villages on the eastern Quebec sea coast, which was known locally as the Quebec-Labrador. Students from Canada and the U.S. volunteered time to provide education and recreation programs. Robert Bryan soon learned that the

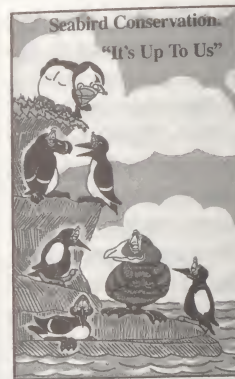
problems in the Lower North Shore - lack of educational opportunities, lack of water safety and recreational programs, unsure employment - were also to be found in other areas of the Atlantic region. As a result the Quebec-Labrador Foundation was created.

Nathalie Zinger pointed out that the rural communities of the Atlantic region share similar characteristics: their economies are resource-based, and many are isolated with a shortage of technical and financial resources. The Atlantic Center for the Environment was created in 1977 as a division of the QLF. The Center's programs include river conservation, research and natural history, inter-regional exchange and policy, publications and leadership development. The QLF and the Atlantic Center for the Environment give citizens of eastern Canada and northern New England the information and skills needed to make informed choices affecting their communities and their resource management. An interesting point is that one of the three people who were in at the start of the Atlantic Center for the Environment is Dr. Kathleen Blanchard, who is an Adjunct Professor here at Macdonald. Dr. Blanchard is the person behind the success story of the QLF's Marine Bird Conservation Project which Nathalie describes in this article. "She is part of the soul of the whole organization," Nathalie said.

More recently the Quebec-Labrador Foundation has given strong support to their Atlantic Region Stewardship Fund, a process whereby private groups such as landowners, resource users, corporations, and citizens' organizations may assume responsibility and carry out conservation activities in the public interest.

Nathalie described the Marine Bird Conservation Project that takes place on Quebec's Lower North Shore. She said that between 1955 and 1978 85 per cent of the breeding population of razorbills, 76 per cent of the puffin population, and a serious percentage of eider ducks declined. The major reason was the illegal harvesting of birds and collecting of eggs.

"QLF created projects to increase the bird population and to involve the community,"



Nathalie said. "We taught seabird biology and conservation principles. We pointed out that puffins lay only one egg and both parents are needed to raise the chick. If one of the parents is killed, that chick won't hatch or, if hatched, it will die. It takes five years for the young bird to come back and lay an egg."

"We want people to take an active role in conservation. We set up youth programs at St. Mary's Island Seabird Sanctuary in Harrington Harbour. Children came from the communities that were harvesting the birds, and they got hands-on experience. Most kids said they had never seen a bird before except on their plate. 'Now I've seen a live one!' QLF are working on arrangements to transfer the management of the Seabird Sanctuary to the local culture and wildlife society.

"We had a drawing contest for all the North Shore schools and received over 300 entries. Some of the drawings were selected for a calendar which was distributed all along the coast. The message came across. We also printed a poster on sea birds and a sea bird conservation booklet with the rules and regulations for hunting, which was illustrated by Steve Tinker of Renewable Resources at Macdonald, was distributed to the schools and throughout the communities."

Between 1983 and 1989, over 40 Lower North Shore people worked with QLF, either as volunteers or paid staff. They have passed on their enthusiasm to others, and some have actually decided to go into conservation work. Partner organizations such as the Canadian Wildlife Service consider the Lower North Shore project a success.

Other Projects

The head office for the Quebec-Labrador Foundation is in Ipswich, Massachusetts.

1989



QLF OUR SEABIRDS NOS OISEAUX MARINS

as well as the Canadian office in Montreal there are field offices in St. John's, Newfoundland, and Montpelier, Vermont. There is a board of directors in both Canada and the U.S. "I am the eye within Canada," Nathalie said. "I am aware of what is happening here, and I can either relay the information or work on it here."

as well as the marine bird conservation project, Nathalie said that she is responsible for other projects, some fund raising, public relations, such as the AQREM seminar, attending meetings, and so on. When she accepted the position in Montreal, Nathalie did so with the proviso that she could do field work in the summer.

Although Nathalie was the first Macdonald student to be hired by QLF, others such as Louise Labarré, Cristina Martinez, and Gregor Eck have followed in her footsteps. "There are campuses where we know that there are people with abilities and an interest in the kind of positions we offer, and Mac has proven to be one of them."

Endangered Spaces Program

Nathalie's expertise is also serving the World Wildlife Fund, in particular Canada's Endangered Spaces Program. Nathalie pointed out that although Canada is a large country, only 4 per cent of it is protected as true wilderness. In some areas, it is already too late," Nathalie said. "For example, we have virtually lost all the original Atlantic hardwood forests. There will never be a wilderness park in southern Ontario as there is not enough wilderness left.

Farmlands in Manitoba have replaced all but .2 per cent of the tallgrass prairie, and the list goes on. To protect a representative sample of endangered spaces across Canada, we must act now."

In the early '80s the International Union for Conservation of Nature released their world conservation strategy which stated that one of the key elements to sustainable development is the preservation of genetic diversity. This was stated again by the Brundtland Commission ("*Our Common Future*") who also recommended that about 12 per cent of the earth's ecosystem be preserved, and that is being used as a guideline by Canada.

"People say they want sustainable development," Nathalie said, "but there are two different things that we need. One is an integrated management of resources and a wise use of them. The second is to make certain that we can protect and preserve biological diversity and to do this one of the key issues is to have a network of representative protected sites. Without that network, we will not be able to achieve sustainable development."

Nathalie said that the endangered spaces program has a specific and measurable goal: to conserve Canada's biological diversity by protecting a representative sample of each of the country's natural regions - there are roughly 350. We want each jurisdiction - federal, provincial, and territorial - to endorse the objectives of the campaign and to define an action plan to complete their network of protected sites within the next 10 years. The federal government, through its Green Plan, has endorsed the objective as has Ontario, Manitoba, Saskatchewan, and the Yukon: five out of 13 jurisdictions have endorsed the objective after one year of campaigning.

The WWF's Canadian office is in Toronto and for this project there are regional co-ordinators all across the country. Nathalie is the co-ordinator for Quebec and as such one of her main tasks is to work with various Quebec ministries in order to get a commitment from the Quebec government.

"Less than .5 per cent of Quebec is protected, and only 10 of the 43 natural regions in the province are represented to date," Nathalie said. "Most of southern Quebec is heavily populated and there is continual development of the area. The last few natural sites that still exist are under tremendous pressure. If we don't act now, we could be too late. Indeed, in some cases we may already be too late."

Wilderness Charter

Nathalie and other co-ordinators also work with non-profit organizations. The Canadian Chamber of Commerce has endorsed the campaign. Here in Quebec over 25 groups such as the Quebec Union for the Conservation of Nature, the Province of Quebec Society for the Protection of Birds, and the Federation of Girl Guides and Boy Scouts have given their endorsement. The WWF has created a Wilderness Charter that organizations can endorse and individual citizens can sign.

"To date 200 organizations have endorsed it and over 200,000 citizens have signed it," Nathalie said. "We are building up support, and we have created the biggest ever coalition on an environmental issue in Canada."

Two challenging and rewarding positions for Nathalie Zinger who, having finished her CEGEP and knowing that she particularly enjoyed natural history wondered what to do next. Her father suggested she talk with his friend Pierre Dansereau, the well-known ecologist. He, in turn, directed her to Dr. Roger Bider, who was at the time Chairman of the Department of Renewable Resources.

"When I walked into the Wildlife office, which was in the Main Building at the time, the first things I saw were books piled to the ceiling all over the place and Iggy, Wildlife's pet iguana. I knew that was where I wanted to be."

Nathalie has since completed a Masters degree in Landscape Planning at the Université de Montréal and believe it or not, still finds time to travel, to do international folk dancing, and go hiking and birding.

On Assignment in Indonesia

by Hazel M. Clarke



Lynda, young Louis, and Remi Gauthier on the terrace of the Centennial Centre.

"I'm pleased to be going back to apply the things I learned," said Remi Gauthier when he learned he had been accepted for another assignment in Indonesia. "I really only felt I was becoming effective when my contract had finished."

Remi's interest in international work is similar to that of a growing number of Macdonald College graduates who are now looking beyond their own province or country for career opportunities. Remi said that he became interested in overseas work during his final year of his Master's studies. That interest plus a solid background in Environmental Conservation have been a ticket to travel, new challenges, new people, marriage and the start of a family.

After seven years in the armed forces, Remi Gauthier, from Montreal, decided he wanted to further his education and was interested in the environment. He graduated with a major in Environmental Conservation and Land Planning in 1983 and went on to do his MSc in Wildlife under Professor Bider, graduating in 1986.

Remi's first assignment in Indonesia was with CUSO; his present one is a three-year project with the University of Guelph and the Government of Indonesia. In between the two, the Gauthiers travelled to England so that Remi could meet his British wife Lynda's relatives and then they came back to the Montreal area to see Remi's family and friends. Naturally, several trips to Macdonald were on the agenda.

On his CUSO assignment, Remi said that he spent the first two months learning the lan-

guage. "The fact that I stayed with an Indonesian family helped a great deal," he said. He was sent to Irian Jaya province on the island of New Guinea. "The university there has an environmental study centre and I was the first CUSO person to be sent to this area. Macdonald students and staff shouldn't complain about the distance between Macdonald and the downtown campus. The main campus was in a town called Jayapura, but I was at the agricultural faculty in Manokwari. The distance between the two was 700 kilometres and there was no road! We travelled by plane or boat."

An interesting aspect of life at the agricultural faculty for Remi was being able to go for a short walk through the jungle to the ocean. He spent as much time as he could there. Another was meeting the very primitive mountain people who would come into town from extremely remote areas to sell their wares. He also visited, where possible, the World Wildlife Fund and CUSO research projects. His main task with CUSO was to get a program organized and to initiate some activities. "By the time I left, we had some environmental impact studies underway at the centre," Remi said.

His present assignment is in Sulawesi where he is a regional development adviser. His first task was to clear a large backlog of work, as there had been no advisor for three months. He has been able to do a lot of field work, which he has enjoyed, and the knowledge obtained has been beneficial in helping the planning board to compile three important planning documents which they were engaged on when he arrived. There are major environmental problems in the area, which has a large amount of marginal land, and a lot of attention is paid to the environmental impacts of large physical projects such as irrigation, road building, and agriculture. Remi said his background in Environmental Sciences is proving invaluable in this new posting.

Lynda was an English teacher at the university and met Remi at Manokwari when she went there to give an English course that international students have to pass before they go abroad to study. "I didn't want to go there at first; then, of course, I didn't want to leave," Lynda said. Son

Louis was born in England when they went there after the CUSO assignment. They both feel very at home in Indonesia. "It's a lovely country, and the people are very friendly," Remi said. "The Indonesians love children; it will be a great place to raise a family. On this assignment, Lynda has a job translating Indonesian into English."

Remi said his education here at Macdonald stood him in good stead in Indonesia. "My BSc studies made me a generalist, which CUSO people liked and, as I placed a lot of emphasis on statistics and research methods during my MSc studies, I was able to teach a course over there. I certainly appreciated being a teaching assistant for Professor Fanous when I faced the Indonesian students."



Remi Gauthier learning how to make palm sugar with two field workers at a village in the project location.

Remi said he was pleased to see the faculty name changed to include Environmental Sciences. "Adding Environmental Sciences reflects the emphasis in the programs that has always been at Macdonald and has increased over the years. I came to Mac because I wanted to get into an environmental field: with Lynda, the baby, and a good life in Indonesia, I'd say I made a good choice."

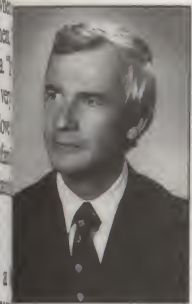
(continued from page 17)

vertising manager. Fund-raising, conservation programs, and working with other agencies all come into play, and it amazes me how many times I come in contact with other Mac grads. A case in point was the discovery that the number 1 salmon biologist in Quebec, Yvon Coté, is a Mac grad (MSc'70), one of Dr. Bider's first. He is always extremely helpful.

Focus Environment

Canada's Green Plan

by David Johnston, Principal
McGill University



The long-awaited federal Green Plan was released last December to high expectations equally from environmentalists, business, governmental and non-governmental institutions, and the public at large. The goal of the Green Plan is to "secure for current and future generations a safe and healthy environment and a sound and prosperous economy." The Green Plan sets out specific targets and over 100 initiatives directly aimed at cleaning up the environment, ensuring the long-term use of our renewable resources, and protecting and preserving the integrity of our global environment, including our special species and spaces. The key to this ambitious agenda is to foster environmentally responsible decision making, challenge to the federal government itself and all of us!

Critics have been quick to attack the Green Plan for failing to go beyond the "minimal" target of stabilizing national emissions of CO₂ and other greenhouse gases at 1990 levels by the year 2000; for not clearly articulating linkages and trade-offs between the environment and the economy; for not acknowledging issues of trade and environment, and the need for reforms of Canada's aid policies. However, the Green Plan should be hailed as a positive, significant first step toward environmental responsibility and sustainable development.

In the sore state of our environment, the tragic degradation in eastern Europe recently revealed to our western eyes, the threat of global failure of the earth's vital elements can no longer be ignored. As the Brundtland Commission put in its landmark report, *Our Common Future* (1987), the only viable option is sustainable development, or meeting the needs of the present generation without compromising the ability of future generations to meet their own needs. In simpler terms, we do not receive our environment as beneficiaries but as trustees.

The strong emphasis on assessing the state of the environment and monitoring progress, in-

cluding the development of indicators, and the need to strengthen Canada's scientific base should be commended. So should the commitment to review environmental implications of existing policies, programs, and regulations. The Green Plan provides a benchmark against which to judge future actions.

The \$3 billion new fund commitment over five years (now extended to six years) contained in the Green Plan cannot alone reverse all of Canada's unsustainable practices. One of the most innovative features of the Green Plan is its commitment to foster environmentally responsible decision making and leverage the financial and human resources to achieve its goal. The success of the Green Plan will also be measured by its ability to develop partnerships among sectors, to change attitudes, to develop the new technology and the instruments (economic and legislative) that will induce societal changes.

The National Round Table

One such example of partnership is the network of Round Tables on Environment and Economy (national, federal and territorial, municipal) which brings together influential representatives of diverse sectors – environmental, business, scientific, governmental – in a non-controversial attempt to break down the isolation of those sectors. The National Round Table*, established by the Prime Minister in prompt response to the challenge of sustainable development, has now developed a momentum of its own, both as a consultative body and as a catalyst for change through the work of its five working committees. For instance, last spring, the NRT sponsored the Sustaining Wetlands conference and was instrumental in recommending that all major sectors including business, agriculture, planning, NGOs, and governments jointly identify appropriate implementation strategies of the "no net loss" principle. Also, the Education and Communications Committee, working with the Council of Ministers of Education, has endorsed a project modelled after the SEEDS (Society, Environment, and Energy Studies) program to develop curriculum and educational materials on

sustainable development for grades I to XII across Canada.

A major new initiative will be to steer the Green Plan into supporting multidisciplinary research. The need to develop new knowledge integrating the interconnectedness of underlying forces, and to train people with the breadth of expertise needed to address global issues, is key to society's preparedness to shift to sustainable practices.

Universities have a major role to play, and McGill is remarkably positioned to demonstrate leadership for its wealth of expertise in both the natural and social sciences. On both our campuses, we must tackle head on the challenges of waste reduction and energy conservation, become role models and reap the benefits of such action.

McGill's long-term answer to sustainable development is in integrating environmental concerns and sustainable development into our teaching and research programs. The recent name change to Faculty of Agricultural and Environmental Sciences has had the beneficial effect to strengthen the faculty's visibility in areas of environmental management and can only encourage the creation of networks within or outside the university. A senate ad hoc Committee on Environmental Studies will soon be suggesting ways to strengthen McGill's dedication to environmental teaching across the whole university, coordinate interdisciplinary efforts, and guide students interested in developing appropriate skills. Increasing interdisciplinary research activity in the area of Sustainable Development and Environment is the objective of a new ad hoc committee within the Faculty of Graduate Studies. One of its first tasks will be to develop McGill's response to the Green Plan.

There is no turning back on the environment and sustainable development. Governments, institutions, and individuals all see the need to work together; they must now deliver.

* David Johnston is the former chair of the National Round Table on Environment and Economy.

Issues in Human Nutrition

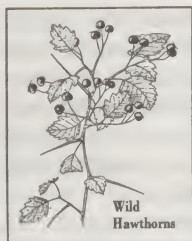
Eating On The Wild Side

by Maureen Lucas, Clinical Coordinator
Professional Practice (Stage) in Dietetics
School of Dietetics and Human Nutrition

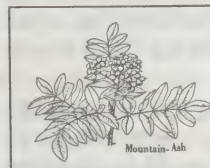


The hostess served Chickweed Soup, followed by Roast Venison with Mountain Ash Jelly, side dishes of Wild Rice and Stir Fried Sea Palm, all garnished with Day Lily flowers. The finale was a Japanese Knotweed Crumble, and the meal was accompanied by a carafe or two of Red Clover Wine. Afterwards the guests sipped Spicebush Tea and nibbled on Haw Turkish Delights. An unlikely supper? Not at all. In Canada, wild foods such as these are readily available to the inventive cook and adventurous palate. Apart from the novelty value of such foods, they may contribute significantly to the nutritive value of the consumer's diet. This is particularly true for those managing on a low income, and/or living in remote areas where the more conventional market choices may be limited.

Wild foods are defined as uncultivated plants or animals which can be used as food sources. At one time, of course, all of mankind was nourished by wild species of food. This is where all of our "cultivated" plants and animals have their origins¹. The variety of edible wild plants across Canada is truly amazing. Once you really explore your environs, you will never be at a loss for interesting ingredients to make a special, not to mention economical, dish. Many of these fruits, nuts, seeds, leaves, flowers, roots, and tubers are just as nutritious, if not more so, than their supermarket counterparts. For example, thimbleberries (relatives of the raspberry), and black salal berries are found in several Canadian provinces during late summer and early fall, and are higher in calcium and vitamin C than most of the more commercial berries¹. Ontario and Quebec are well blessed with wild fruits, from the wild cherries known as chokeberries to the pink lowbush cranberries also known as lingonberries, foxberries, or partridgeberries². There are also many varieties of wild grapes and apples, and even a few wild plum trees. Nowadays there seems to be an increased interest in also using flower petals. They have



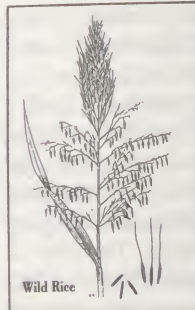
been used for many years, as teas, infusions, and wines. Today you may see pink and red wild rose petals, or intense blue chicory flowers, being used as edible garnishes or as additions to a salad, or crystallized with sugar to be served as a sweet treat.



Wild roots and tubers also abound. Wapato and ground nuts, both found across many Canadian provinces, are similar to potatoes and can be cooked in the same way. The roots of goatsbeard and salsify can be boiled as a vegetable, and the burdock plant, which grows wild on waste land all over Canada, provides both roots as a hot vegetable and tender shoots as an interesting salad ingredient. Wild root foods have a similar nutrient profile to the commercial varieties, although in certain species, such as wapato, the iron and phosphorus content may be considerably higher¹.

The leaves of lamb's quarters (alias pigweed, goosefoot, or wild spinach) and red clover are both quite rich sources of iron, and can be prepared in the same manner as the commercially grown spinach. Other hot and cold vegetable substitutes to look out for include dandelions, fireweed, hop tops, and sorrel.

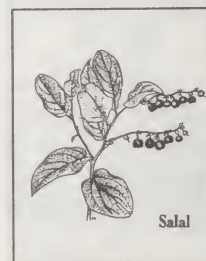
The growing interest in Japanese cooking is leading to greater usage of what may be one of our most wasted natural resources - the numerous seaweeds to be found along the Canadian coastline. Seaweeds are a source of protein (about 2.5 per cent protein by weight), as well as supplying vitamins A, B1, B12, C, and D, and some minerals and trace elements². The most common usage of these plants is in salads and stir-fries, as well as in the increasingly popular sushi. Wild rice is another water plant found in Canada. Otherwise known as Indian rice, wild oats, folle avoine, or manomin³, it is usually found in shallow rivers or streams, where it flowers from July to September, after which time the seeds ripen. This rice contains



nearly twice as much protein as regular white rice, and is a useful source of phosphorus, potassium, riboflavin, and niacin⁴.

Though nutritional analysis is not available for many wild foods, it is a reasonable assumption that any wild species of plant or

animal, which is palatable and free of toxins, is likely to have a nutrient profile which is at least as good as a similar commercial/marketed food¹. It is essential, however, that any wild food is carefully identified before consumption. If there is any doubt at all, an expert or a specialized text should be consulted. More and more identification and recipe books are now on the market to help the neophyte wildlife cook.



All wild species of plant or animal have the potential to become endangered. Hunters of wild animals must abide by the local hunting and fishing regulations. Wild plant gatherers too should consider endangerment

and collect only those plants growing in profusion, and only in quantities that will not jeopardize the viability of each colony.

References

- ¹ Kuhnlein, H. 1985. Wild Food for Modern Diets. Nutrition Update, Vol. 2, edited by Weininger, J. & Briggs, G. John Wiley & Sons, Toronto.
- ² Phillips, R. 1986. Wild Food. Little, Brown & Company, Toronto.
- ³ Turner, N. J. & Szezawinski, A. F. 1988. Edible Wild Fruits and Nuts of Canada. Fitzhenry & Whiteside, Markham.
- ⁴ Nutritive Value of American Foods. 1975. Agriculture Handbook 456. United States Dept. of Agriculture.

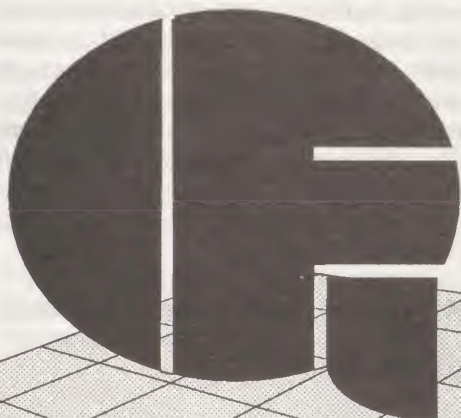
A Change of Face and Author

From time to time you will see new names writing for this column. As a part-time PhD student now, I must trim my time at strategic times of the year! I welcome the opportunity to introduce you to my colleagues who, like Maureen Lucas, will write on topical Issues in Human Nutrition.

Linda Jacobs Starkey

COOPÉRATIVE FÉDÉRÉE DE QUÉBEC

**THE FEDERATION OF AGRICULTURAL
CO-OPERATIVES IS ALSO AN
INDUSTRIAL AND BUSINESS ENTERPRISE.**



Owned by member farmers

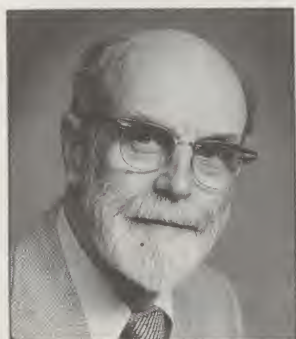
**COOPÉRATIVE FÉDÉRÉE
DE QUÉBEC**

1055, rue du Marché central
Montréal (Québec)
H4N 1K3

Through member co-operatives, it supplies farmers with goods and services required for operations as well as processes and markets farm products - pork, poultry, milk, fruits and vegetables.

Fun Fact Fable Fiction

by Dr. Ralph H. Estey
Emeritus Professor, Department of Plant Science



New Brunswick Born

May Agnes Early, who was born in Saint John, N.B., November 5, 1840, became one of the few Canadian novelists to appear before

the American public in the nineteenth century, and the first woman to do so. She wrote romantic novels that appeared as serials in several well-known journals, including *Saturday Night of Philadelphia*. She married John Fleming, a mechanic, after a torrid romance of only three weeks. Eventually they had four children.

For nearly two decades, after about 1870, she was one of the best known writers of sensational, romantic stories in North America. Her name, as May Agnes Fleming, was so well known and well liked that some of the papers continued to make capital out of it by publishing under her name for at least 10 years after she died, March 24, 1880, in Boston.

Too Late

In 1912 various magazines and journals in Canada carried an advertisement offering a reward of \$1,000 to anyone who could find, and not disturb, a nesting pair of Passenger Pigeons. Whoever inserted that advertisement must have felt quite certain that the reward would not have to be paid, because Passenger Pigeons had not been seen in Canada for many months prior to 1912.

The Prisoner

An amorous maiden antique,
Locked a man in her house for a week.
He had entered her door
With a shout and a roar
But his exit was marked by a squeak.

Customer Protection

On the 29th day of March, 1838, the Government of the Province of Nova Scotia passed "An Act Respecting the Sale of Grindstones," which required that, "all grindstones made within this Province and intended for shipment therefrom shall be free of spalts, shakes, cracks, bull's eyes or seams, and shall be made exactly round, of equal thickness, square on the edges, neatly and smoothly cut, with the eyes properly fitted and finished, in such manner as to be fit for immediate use."

A Student's Answer

A pharmacy is where farmers learn to farm.

Girl Trouble

Jim: "I left college because of girl trouble."
George: "But you went to an all-male college."
Jim: "I know. That was the trouble."

Air Pollution

Late in October, 1967, the Canadian Broadcasting Corporation replaced the popular Ed Sullivan show with a program called "Air of Death," to shock the public into an awareness of air pollution.

Riddle

What is it that occurs once in a minute, twice in a moment, but not once in a year?

Water Divining

"Divining" is an archaic word that once meant the same as predicting or prophesying, thus water diviners predict where water is likely to be found. Water divining is an ancient "art" and may have been mentioned in the Bible when reference is made to "...a certain damsel possessed with a spirit of divination met us, which brought her masters much gain..." (Acts 16:16). Many people have great faith in the movement of a forked twig of hazel, or other bush, in the hands of a diviner, and according to the Annual Report of the British Columbia Department of Agriculture, for 1931, two water diviners were

engaged "to mark locations where wells might be drilled or dug with reasonable expectation of securing water." In the U.S.S.R. this ancient art has been modernized by the Siberian Institute of Chemical Kinetics, which is reported to have invented a device that makes use of the effect known as nuclear magnetic resonance to pick up signals reflected from hydrogen nuclei in the water table. In this high-tech divining, a small loop of copper wire, attached to appropriate instruments, is replacing the hazel twig of the traditional water diviner.

Play Ball

The first recorded baseball game in Canada took place June 4, 1838, in Beachville, Ontario. For that game, the bat was flat or shaped somewhat like a cricket bat, and the infield was square, with four bases. The record of the game does not mention just where the batter stood, in relation to the bases. If he stood beside a base, that base would be equivalent to a home plate, or home base.

Economic Advice

Based on the following Stock Exchange report:

American Can	85.2
Federal Water	81.1
Consolidated Gas	49.0
Scott Toilet Tissue	2.2

the wise investor should sit tight on his Can, hold his Water, and get rid of his Gas. It's too late to do anything about Scott, which has struck a new bottom and thousands have been wiped out.

Taxes

As this is being written, in the middle of March when the payment of taxes is in the forefront of my mind, I am reminded of the decree from Caesar Augustus, "that all the world should be taxed," (Luke 2:1) and of the old adage that nothing is more certain than death and taxes.

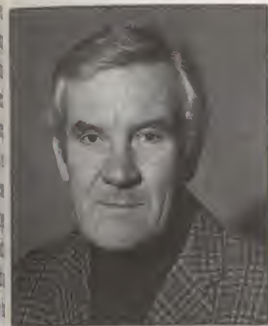
Riddle Answer

The letter "m".

Seeking Solutions

Welcoming New Associate Dean, Research

by Dr. Robin K. Stewart
Associate Dean, Research



After five years as Associate Dean, Research, I will be stepping down to be replaced by Dr. Urs Kuhnlein of the Department of Animal Science. Dr. Kuhnlein comes into the job with excellent research credentials and, having been in the faculty for a number of years, a healthy knowledge of our staff and also the university system. He also has the reputation of being a man of conviction with good ideas, so we will benefit greatly from his taking on the job.

As for myself, I have enjoyed myself over the last five years but look forward to a number of

different activities. I will, of course, be carrying on my own research activities as well as teaching. Just maybe, I will have some more time to spend with my graduate students! As you have probably gathered from some of my columns in the Journal, I have a keen interest in international development, and I have agreed with Dean Buckland that I will continue on in a coordinating capacity in that area of the faculty. We have quite a few exciting developments in this area, so you will probably hear from me about them in the future. Right at this moment, though, I'm looking forward to sabbatical leave, starting in July 1991.

I hope you will join with me in wishing Urs Kuhnlein a happy and successful time as Associate Dean, Research.

Coming Events

Nabec 91

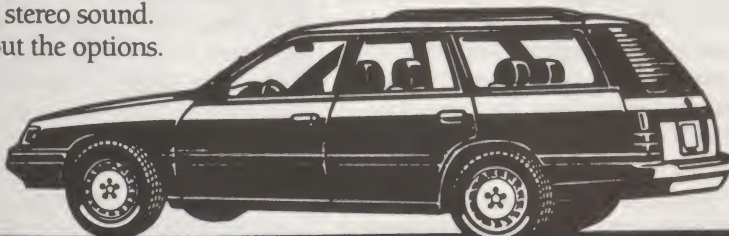
The second annual meeting of NABEC (Northeast Agricultural/Biological Engineering Conference) will take place on the Macdonald Campus on July 21 - 24, 1991. The program will address the problems of a food system trying to respond to the sometimes contradictory pressures of food quality, food safety, ecological considerations, and economic constraints.

The American Ornithologists' Union

The 109th American Ornithologists' Union meeting will meet in Montreal, Que., from August 14 to 19, 1991, at the invitation of McGill University, the Province of Quebec Society for the Protection of Birds, Inc., and the Society of Canadian Ornithologists. The meeting will take place at the downtown campus of McGill.

loaded

suspension and 4WD handling. Think about the Subaru Legacy LS Wagon, sister to AJAC's 1990 Sedan of the Year. With power windows and doors, air conditioning, cruise control, power sunroof, alloy wheels and 80 magnificent Watts of AM/FM MPX ETR stereo sound. Think about the options.



SUBARU LEGACY

If you think about it, you'll drive one.

Think about 130 h.p. and 16 valves with 4 wheel disc brakes, 4 wheel independent

AUTOMOBILES LAVIGNE INC.

37 STE-ANNE
STE-ANNE-DE-BELLEVUE, QUEBEC

TEL.: (514) 457-5327

FAX: (514) 457-4429

Diploma Corner

Starting Small, Working Hard, Planning Big

by Hazel M. Clarke & Linda Hoy



Shelley Deacon milking Andrea, a Saanen goat on her farm in Waterville, Que.

The scenery along just about any road that you drive down in the Eastern Townships is picture postcard pretty. The quarter mile cul de sac in Waterville that ends in Shelley Deacon and Tony Couves' front yard is no exception: it's scenery at its best. Trouble is - Shelley and Tony are too darned busy to enjoy it. They do enjoy one thing, however, and that is they have their own farm. They both work a long, hard day, seven days a week, but when they finally sit down for supper late at night they know they have fed and milked their own animals in their own barn on their own land. Not an easy thing to do when you're still very young, when you don't have much money, and there's no farm to inherit from parents.

Is it possible to chore every morning, to work a long day, come home and chore again in the evening? "Yes," says Tony Couves, "if you really enjoy it, and you really want to get into the business. You both have to want to do it. It's tiring but we want to farm full time eventually, and this is the only way we know how to start."

"We tossed the question of another lifestyle around," Shelley added, "but neither of us wanted to go to work, live in an apartment and try to save money for what we really want to do now and later: farm. Buying this made more

sense that renting and it is in the area where we are both working."

It's only a 60-acre farm, the barn is small and old, but it is step number one. It's time to build up a herd: actually three herds, to improve the house, the barn, and the land. They hope some day to see a return on their hard work and investment and to reinvest in a bigger, more profitable enterprise where at least one of them may farm full time, the way they both feel farming should be done.

The hard-working, energetic, enthusiastic Shelley Deacon, Diploma '81, deserves an article at the best of times; the fact that she was raising goats just makes the story that much more appealing. The fact, too, that she and Tony Couves, BSc(Agr)'86, have bought a farm was the icing on the cake. Shelley doesn't mind sharing her Dip Corner with Tony; he, in turn, was delighted to talk about the goats, his own ambitions for a Jersey herd, their beef cattle, and the other livestock.

Goats weren't in Shelley's life to begin with. She was raised on a beef farm in Waterville. As her father died when she was quite young, she helped her brother, Warren, with a great deal of the farm work.

Shelley chose the Diploma program at MacDonald because she wanted the practical knowledge. She admits to being more interested in research now than she was then. Shelley enjoyed the program and particularly values the friends she made. "I have a lot in common with these people and see them as often as I can. I met Martha Robinson the first day we started the course, and we've been great friends ever since. Martha went on to get her degree ('85) and is a technician at the college farm. She comes down to chore for us if we both have to be away."

After graduating, Shelley worked at Templedale Farms in Howick and then, wanting a complete change, she went West for a year. Home again, she worked for her brother and then accepted a job on the college farm. She was offered a full-time position, but at the same time she received a job offer from the Dairy Herd Analysis Service (DHAS) which she accepted.

It was while at DHAS that Shelley became interested in goats. "It was just a fluke. I answered a phone call from a goat farmer wanting someone to do a test. I did the one-day check test in St-Polycarpe at Irvin MacArthur and Nathalie St-Pierre's farm. Some time later I was asked by the Goat Society to do the testing, and I did. I also worked for John Fingland in Howick who milked about 15 to 20 purebred Saanens. That's when I guess I got hooked on goats!"



Tony Couves hopes to build up his Jersey herd.

Shelley was with DHAS for almost five years. Her parting gift from the staff was a stuffed goat - and a live one, a purebred Saanen with all its papers. Mr. Fingland had already given her a goat and, when she was leaving DHAS he also gave her a buck, Benjamin. Shelley also bought herself one. She returned home to help her brother with the good beginnings of a herd. Shelley still chores for him two hours after work each day. In peak periods, such as haying, Tony also helps out at the beef farm. Warren, in turn, brings his machinery over and works their land for them.

Shelley also accepted a part-time job with Agri-Analyse, a successful feed analysis busi-

ness owned by Terry Winslow, Dip '74. Shelley later took on the job full time. "I do some of the lab work and all of the administrative work," she said.

Shelley and Tony first met when they were both working at the college farm. Tony, from nearby Baie d'Urfé, went to the John Abbott CEGEP, started Mechanical Engineering at McGill but didn't like it, and decided to try Macdonald. "I thought about going on to become a veterinarian, but after working at the college farm, I realized I liked working with dairy animals. My first experience with practical farming was at Macdonald," Tony recalled. "Then Farm Director, Rudi Dallenbach, offered me a summer job. Clancy Annesley, Dip '81, who was full time at the farm, took me under his wing and taught me a great deal."

Tony majored in General Agriculture, worked at the college farm and then gained more experience and a love for Jerseys at a farm in Ontario. He came back to the farm and then moved down to the Townships early in 1988 and worked for Albert Gass. Tony now works in a shop in Lennoxville that makes and assembles propane tanks. There's a lot of overtime, and he also helps out on other farms when he can. The extra income helps to pay for the present farm and to build up stock for the future.



Shelley and a favourite, "Starbuck."

Tony and Shelley bought their farm in 1988. Shelley said her rabbits and her goldfish go with her on every move. They plus her three does and a buck, a dog and a Toulouse goose, Squawk - the best watchdog a farm could have - moved in with them. Since that time they have acquired more goats, a small herd of Jerseys, some beef cattle, vealers, chickens, another dog and numerous cats.

Shelley now has 13 does and another buck, Starbuck. She would eventually like to have between 15 to 20 milking does. "I really like working with goats. They are very quiet animals and are easy to handle. Saanens are like Holsteins," Shelley explained. "They're high producers and lower in fat. A good mature doe will average 1,000 - 1,400 kgs in a 305-day lactation. French Alpines and Toggenburgs are also high producers, but Saanens are bigger and, I think, have more potential for production."

Shelley said that there have been no kidding problems with her goats, but that problems are not uncommon, especially with multiple births.

Unfortunately, goats are very susceptible to disease. Shelley said that a form of arthritis (CAE) can be passed on through the mother's milk to the kids. "I raise my kids on cow colostrum and then on Jersey milk." The other drawback is that, in most cases, Shelley has found that not only do most veterinarians not understand goats but they also don't seem particularly interested in them. This may change as Shelley said that goat herds are increasing in Quebec: there may be about 80 herds. Back in the late '70s, early '80s, Pierre and Martine Gadbois taught an evening course at Macdonald College on Goat Husbandry ("A Place for Goats in Quebec Agriculture," *The Macdonald Journal*, July 1978.) Shelley has not met either Pierre or Martine Gadbois but said that many of the people now in goats took that course.

Most types of goat cheese are low-fat, ranging from as low as 14 per cent to about 22 per cent butterfat on average. The smaller fat molecules found in goat's milk make the cheese creamy and easy to digest. Goat's milk, cheese and yogurt are often recommended for those

(continued on page 34)

MACDONALD COLLEGE DIPLOMA in AGRICULTURE

Some things have changes....

The only Diploma in Agriculture offered
in English in Quebec

The introduction to organic agriculture

Better facilities (new dairy complex)

Some haven't...

Practice is still an important part of learning

Qualified, interested staff

The best investment a young person could make

For more information, contact: André Neveu, Liaison Officer
Telephone: 514-398-7816

Macdonald Campus of McGill University
21,111 Lakeshore Road
Ste-Anne de Bellevue, Quebec H9X 1C0



The Quebec Women's Institutes

President's Message



Gracia Comeau, Dunham WI 1991 President, Pearle Yates, Quebec Women's Institutes President, with owners of Salon Dian-L holding a plaque now hanging in the salon to depict the building being the first meeting place of the first Quebec WI meeting on January 27, 1911.

Hello Everyone: Time flies. It hardly seems possible that three years have disappeared into history. Changes are taking place in WI here in Quebec and in WIs across Canada and around the world, but the basic stability of our organization is a sustaining part of our lives when all around us troubled times seem to prevail. What a mental boost it would be if we could turn on the news and hear about something good that was happening in WI instead of the depressing news about our economy, horrid crimes, and the political situation.

Communication is of prime importance to our organization. Continue to use all the methods we have available to the best of your ability. Keep interested and participate if only in a small way.

Thank you all for your cards and letters and calls. I have enjoyed hearing from you - even from those who were troubled or upset. It meant you cared about this great organization. Good luck in all your endeavours for "Home and Country."

Pearle Ingall Yates
QWI President

Dunham Celebrates 80 Years

The WI in the province of Quebec was organized in Dunham on January 27, 1911, by Mrs. Elizabeth Beach (whose home still remains between Dunham and Cowansville, where a sign pointing out this historical site can be found on an old maple tree.)

Eighty years ago, the first meeting was held in Best's Hall, which now houses offices and the "DIAN-L" Beauty Salon (where a plaque was erected January 23, 1991), with pictures of Mrs. Beach, Best Hall, and the Cairn. A special celebration organized by the members of the Dunham Branch to commemorate this happy event was held in All Saints Church Hall the same afternoon.

Members from Cowansville, Fordyce, and Stanbridge East branches joined Dunham in the celebrations, as did Past Provincial President Lucy French, Provincial Secretary Micheline Wormell, Provincial President Pearle Yates and Betty and Sheila Needham of Brome County. All were recipients of a yellow carnation corsage, as were members of the Dunham branch. Record reporters Sharon McCulley and Ashley Sheltus were also present.

Gracia Comeau, newly elected branch President, welcomed everyone, following which the Mary Stewart Collect and Salute to the Flag were repeated. Several presentations were made, one being a guest book and an arrangement of blue and gold flowers from Stanbridge East branch, and three articles from the Adelaide Hoodless Home from Lucy French.

Entertainment included slides and commentary on her trip to Europe by June Lamey and the Reverend Mary Irwin Gibson who accompanied herself on the guitar and sang several selections.

Several old WI cookbooks were on display and a scrapbook of the Dunham WI. Flowers on the guest book table and one other arrangement were later sent to Lilo Bidner and Lu Staton who had just returned from hospital. The arrangement on the tea table was presented to Elda Martin, Dunham's oldest member. It was a pleasure to have Edna Corey present. She celebrated her 95th birthday on December 14, 1990.

Mrs. Jean Muldrew explained the aims of the WI that cold January 27, 80 years ago as follows: "The dissemination of knowledge relating to domestic economy, including household architecture, with special attention to home sanitation, a better understanding of the economic and hygienic value of foods, clothing and fuel, and a more scientific knowledge of the care and training of children, with a view to raising the general standards of health and the morals of our people."

The Women's Institutes is the largest organization of its kind with somewhere near nine million members in 68 countries. There are about 1,300 members in Quebec and 36,100 across Canada. The aims of the WI of 80 years ago continue today with added concerns: our environment, our aged, farm safety, and so on.

With conveners in Agriculture, Canadian Industries, Citizenship and Legislation, Education and Cultural Affairs, Home Economics and Health, International Affairs, and Publicity in every branch and county WI, it is most fitting that our motto should be For Home and Country.

Barbara E. Harvey
QWI Publicity

WI Activities for the Environment

Recycling has become the modus operandi in the Chateauguay Valley. All branches have been active in getting programs established in their communities. The far-reaching ill effects of indiscriminate dumping and incineration are impinging more and more on public consciousness.

Aubrey-Riverfield WI has been involved in many aspects of the fight to help save the environment. Our members have attended meetings, met with the local councils, watched videos such as "Waste Management as if the Future Mattered" with Dr. Paul Connett of the St. Lawrence University of New York State, supported recycling drives including one on Earth Day last year and circulated petitions against two proposed waste incinerators in Valleyfield.

About five tons of newspaper were collected during our first recycling drive in Howick on April 7, 1990. Another successful collection took place on September 22. Community response was terrific! One man had been stacking his newspapers for five years waiting for an opportunity to recycle them.

Starting in December 1990 and continuing monthly on a regular basis, we have arranged to have a pick-up truck at a central location in Howick for recyclable materials including newspaper, cardboard, glass (previously collected by Howick WI), tin, other metals, and plastic.

Recycling has been organized in the Howick Elementary School. Our WI is now working in collaboration with one local parish, Tres St. Sacrement, to extend the recycling operation. A presentation was made in January to the Special Delegates Bureau of the MRC (regional council). Our views in favour of a comprehensive recycling program and composting, and a delay of the proposed incinerators were given at a recent press conference. A coalition of about 20 groups was present at the conference as well as Dr. Paul Connett who brought the message, "Incineration is Dead."

Jean Furcall
President,
Aubrey-Riverfield WI

Megantic County Meeting

On September 25, members of the Megantic County WI welcomed a visit from members of the Provincial Executive Pearle Yates and Lucy French, and seven members from Valcartier Branch. The meeting took place at the Oddfellow's Hall in Inverness.

Helen Jamieson, County President, welcomed the visitors and introduced the branch Presidents: Jeannine Constantine of Valcartier, Mildred Robinson of Inverness, and Audrey Allan of Kinnear's Mills. Both Pearle and Lucy spoke to the members. A question and answer period took place on the subject of food at the fairs and on reports. A jam tasting contest was won by Joy Nugent. The Megantic County

Friendly Competition was judged by Pearle and Lucy, and Pearle led a discussion on donations to the provincial WI.

Safety First by Elsie Prevost

Summer Fun: Cycling



More and more Canadians are riding bicycles these days, either for pleasure, exercise, or cheap transportation. Unfortunately, more bicycles have meant more accidents. Many of these injuries are due to mechanical and structural problems including brake failures, wobbling or disengagement of the wheel or steering mechanism, difficulty in shifting gears, chain slippage, pedals falling off, and breakage of spokes.

Although there are very few certified bicycles on the market, the C.S.A. mark is a buyer's assurance that the bicycle has passed strict structural as well as braking tests. Most accidents could be avoided by careful purchase and upkeep of the bicycle.

Front baskets for bicycles have a centre of gravity that is too high and can make for awkward steering. Rear carriers are a better choice, but always be careful that nothing is dangling down that may catch in the wheels.

One third of all injuries related to bicycle riding are to the head and face area. Helmets significantly reduce the risk when biking. Ensure you are visible when riding at night. Equip your bicycle with a white headlight, red rear reflector, reflectors on the pedals and on the sides, and for extra special security wear QWI reflectors.

I hope all branches have received copies of the superbly comprehensive and interesting Safety Quiz prepared by June Kelly, and that they will be introduced unflinchingly into their meeting programs.

Are You Listening?

Gladys Nugent, a former long-time QWI member and a past QWI Provincial Publicity Convener, entered an essay contest for senior citizens in Ontario and placed 26 out of 618 entries. Congratulations, Gladys! Some 70 of the best essays were compiled and published in a book entitled "Are You Listening?" by the Office for Senior Citizens' Affairs in Toronto. These short, 500 words or less essays are a wonderful, positive approach to being a senior. Poor health is not forgotten, but plays a minor role in these cheerful, thoughtful pieces that are full of reminiscences of yesteryear and even more packed with things that may be done today and tomorrow. A great read! (Hazel Clarke)

New Members

I'm pleased to report that Argenteuil County reports six new members: Arundel, 1; Jerusalem-Bethany 1; Pioneer 2, and Lakefield 2. Unfortunately no names reported (though I constantly ask for names). It is, however, a pleasure to welcome you all. Mrs. Meryl Nutbrown of Brompton Road Branch (Sherbrooke County) - a warm welcome to you, too!

Congratulations

To the three "anonymous" members of Dewittville Branch (Chateaugay - Huntingdon County) who have recently been presented with 25-year pins, and to Mrs. Marion Connelly of Brownsburg Branch (Argenteuil) upon receiving a Life Membership.

We Remember (In Memoriam)

Hazel Bain, Jerusalem-Bethany (Argenteuil); Ruby Moore, Stanbridge East (Missisquoi); Rita Phelps, Cowansville (Missisquoi); Muriel Tibbitts, Cowansville (Missisquoi); Elsie Wingate, Brompton Road (Sherbrooke); Margaret Neil, Granby Hill, (Shefford).

With the Branches

ARGENTEUIL Arundel donated park bench to senior's home; collected extra pennies for

"Women Feed the World," held quiz on geographical and social issues, and studied more about levels of WI. Brownsburg enjoyed a restaurant luncheon and brought cookies for senior citizens. Dalesville-Louisa held a successful garage and bake sale; Convener of Education, who is a part-time resident of Texas, gave insight into the social activities of the Daughters of the British Empire of which she enjoys being a member. Founded in 1909, its main purpose is to maintain homes for aged British women in foreign countries; enjoyed the video "In Her Chosen Field" from Country Canada; donations made to Jaws of Life, fire department, 4-H Club, and children's hospital. Frontier collected jams and jellies for battered women's home; held a question and answer period following a questionnaire from Alliance Quebec; discussed the disposal waste site in Chatham. Jerusalem - Bethany welcomed a new member; Dave Atkins, guest speaker, showed slides and commented on many countries he had visited and told how thousands of children in New Guinea are cared for; Lori Ward, (chosen for writing an essay on her reasons for her interest in World Vision) had visited India and told of the poverty and hunger there; proceeds of an afghan boosting the county funds. Lakefield supported The Macdonald Journal by sending \$7.00 per member; Education Convener told about a new McGill Book Store opening with about 40,000 books housed in the three-storey building, making it the largest university book store in eastern Canada. Pioneer's speaker was Sylvia Meloche, who attended a computer camp at the Calgary University; welcomed two new members; one member spoke about Justice Bertha Wilson's retirement from the Supreme Court of Canada - a native of Scotland, she was the first woman to hold this position. Upper Lachute East End Bruce Dobbie spoke on the Argenteuil Historical Museum in Carillon; Sam MacBeth reported on Meals on Wheels, and an article was read on making items from recyclables.

BROME Abercorn held a rummage bag sale; jean sale and annual yard sale; held a luncheon at Reilly House in Mansonville; support Camp Garagona for intellectually handicapped, elementary school, and local cemetery. Their WI hall is used for Guide meetings, teas, cemetery



Life Memberships were presented at both the September and October 1990 meetings of Milby WI in Sherbrooke County. Shown in September, l to r, Mildred Lowry, June Westman, County Past President who presented the awards, Evelyn Suitor, and, at back, Beverly Patrick. In October, l to r, Winnona Kirby and Dorothy Martin. Pansy Powell is missing from both photos.

meetings, craft shows, and recycling projects. Austin increased their funds with their annual garden party; gave a bursary to an Alexander Galt student; supported local cemeteries, churches, and Meals on Wheels. Sutton Jean McCaw spoke on the Brome County history; Pat Lahue gave a talk on recycling and displayed some recycled articles; Norma Jennings spoke about the days she worked for Jehane Benoit.

CHATEAUGUAY-HUNTINGDON Dundee had a card party and pot luck luncheon. Dewittville three members received 25-year pins (please give names); held a "hat bee" when hats were made that were worn at Huntingdon Fair; donated to the Hoodless Decorating Fund. Franklin Centre donated to "Youth and Environment" spring conference; finger puppets were made and donated to Barrie Memorial Hospital; sponsored school's public speaking; notary Dolores Pilion spoke on "Women and the Law;" entertained eight branches when guests were Past Provincial President, Provincial President, and County President and presented a four-act skit on "Apples"; 14 members and friends toured Northern Telecon. Hemmingford conducted a quiz on the Middle East. Howick took 33 senior citizens shopping to Fairview; took orders and

realized \$300 from a pie-making bee; invited guests to a pot luck luncheon when decorations used were from recycled materials; had a program for international affairs on the Middle East, with a quiz on its countries, capitals, religions, etc. Huntingdon took 97/100 points at the Fair in branch WI competitions; bus trip to the Pigery Theatre; extends birthday greetings to WIs in England and Wales, which started with 1,405 branches and now have 9,000.

COMPTON card parties and baked bean suppers were held to raise funds for the Bursary Committee and the county. This county buys books for three schools to commemorate World Food Day. Brookbury served at member's 50th wedding anniversary; Founder's Day honoured with donations made to Hoodless Home, Wish Foundation, and Sherbrooke Hospital. Canterbury met at a Scotstown restaurant; entertained former members and families and played whist. Sawyerville had speakers on women's laws and Women for the Survival of Agriculture; buys books on handicrafts for a school in memory of a departed member.

Gaspé Members of the various branches were honoured to have breakfast with Mrs. Mulroney when she visited the county. Barachois donated to various organizations and many fingers kept busy for the Wool Gathering. Dartmouth served juice and cookies to school children for World Food Day; money was donated to the local sanatorium and hosted the Gaspé County Fair. Douglastown served soup and apple crisp to a local school for World Food Day. Wakeham held a Hallowe'en party for children and served Christmas dinner to the community's over 80s.

GATINEAU Wright donated to the snowsuit fund; held a contest on "which is crossed and which is not"; 10 members attended the Christmas meeting.

MEGANTIC Inverness made a donation to the QWI; Melanie Jacques was recipient of High School WI Award; extends a big thanks to

Margaret Dempsey for her many hours spent in making quilts. Kinnear's Mills World Food Day recognized by renewing Reader's Digest for patient at Pavillion St. Joseph; held a surprise baby shower for Collen Lachance; quiz on historical facts about the town; three members were recognized for perfect attendance; circulated a paper among members re proposed legislation on gun control; held program on "What comes to mind when you think of troubles in the areas of the world?"

MISSISQUOI the four branches all endeavoured to support the various fields of WI work and like other groups became more aware of environmental issues; worked diligently for the Wool Gathering, bringing much cheer to the recipients of the articles distributed to schools and seniors' homes; aided students with bursaries as well as recognizing the elementary students with book prizes for their improvement; Janet Harris was the recipient of the Massey-Vanier Regional Bursary, donated by this county.

MONTCALM RAWDON A twice-a-month year round project: homemade courtesy meals are delivered to the lonely/shut-ins; this branch (as many others) is concerned about QWI expenses and how some cut-backs could be made. Some suggestions: 1) cutting the cost of correspondence paper by using both sides, 2) revising the mailing list so only one person receives it per branch, rather than more.

PONTIAC Information Day is a project looked forward to annually by this county. This year's program involved "Environment - Painting on Silk Material - the New Hospital, and Recycling." Bristol and Wyman sponsored an entertaining Christmas program which aided the hospital; branches competed at Shawville and Quyon fairs; among other programs catering was done for farm sales, agricultural meeting, farm days, and farm transfer seminar.

RICHMOND Cleveland furnished homemade cookies for Meals on Wheels - decorated Valentine cookies for New Brunswick Foyer (a home for seniors in Richmond); invited guests from the Wales Home for Christmas dinner and gifts; held a sale of jeans. Mel-



One of the rare occasions when the Inverness Women's Institute had their four Life Members all together. The occasion was cutting the cake in celebration of the 70th anniversary of the branch. Members are, l to r, Ruth Graham of Smiths Falls, Ont., Mildred Robinson and Margaret Dempsey, both of Inverness, and Alice Muir of the Wales Home in Richmond. All four have played a big role in the history of the WI and together represent many years of dedicated service.

bourne Ridge shows crafts every month; enjoyed a restaurant meal, and visited Darcy's Antique Barn. Richmond Hill various members donated to the Hoodless Home. Much publicity was done through posters, newspapers, etc. when they hosted the Madrigal Choir; Publicity Conveners worked hard on handicraft display at Farm Day and also at Centre d'Art; a member attended National Farm Women's Conference in New Brunswick. Richmond Young Women set aside a month to "bring a friend" - the results were seven guests!

QUEBEC Chauveau (Valcartier) summer outing was to visit Roger Van Hende Gardens in Ste. Foy which is a Laval University Horticulture Research Project and covers all branches of horticulture; visited an estate of Ste. Croix, built in 1840; had a hot dog stand and tables of odds and ends and home-baking at the Labor Day B.B.Q. and Picnic; FWIC cookbooks, reflectors, QWI hastinotes were also for sale; members participated in recycling drive, working together for improved environment; four members managed a booth at Voice of English Quebec Fall Fest, when a new member

may have been recruited and another interested in forming a new branch. To the merchants who donated prizes for the euchre party, thank yous were sent (making for excellent WI publicity); Soup was supplied after a sleigh ride for the "Old Fashioned Christmas Tree Lighting" organized by the municipality.

SHERBROOKE Ascot and Lennoxville presented bursaries to Alexander Galt students Sara Allen and Julie Leblond; and renewal subscriptions to the ACWW Country Woman; Ascot donated to Frances Taylor Memorial Fund in memory of Idel Robinson; entertained county WI officers, and showed a tape Farm Safety for 4 - 14 year olds. Brompton Road welcomed Meryl Nutbrown as a new member. "A Child's Christmas" was the theme for a soup and sandwich luncheon, with lighted candles welcoming patrons to the tables, with many little different items from the handicraft and hobby sales tables. As a finale to this day, members rewarded their families and friends who had assisted with a ham dinner, presenting each lady with a rose and the men with a windshield scraper. An enjoyable evening included games and carol singing. Milby collected gifts for patients in hospital; visited a long-time member Olive Painter, on her birthday; held a quiz on news and people of 1990, and the booklet "An Historial Tour of Milby" by Scott Lowd was presented to the members.

SHEFFORD All branches had very interesting topics for the convener reports and learned many helpful "green thumb" hints; awarded prizes to elementary school and a scholarship to a Massey-Vanier student.

STANSTEAD One branch packed boxes for the seamen; one planted a tree and held a tea to commemorate their 75th anniversary; WI members worked in the library; another branch is a member of and does volunteer work for Massawippi Water Protection Association; all branches help at the school fair, the tea room and sales table at the Ayer's Cliff Fair. One branch ordered Federated News.

Barbara E. Harvey
QWI Publicity

Newsmakers

On Campus



Macdonald graduates attending the Quebec Home Economics Association meeting at Macdonald were, front row, l to r, Annette Van Vliet, Gaye Meredith, Helen Neilson. Back row, Jean McHarg, Trinkie Coffin, Carolyn Doucet, and Marilyn McDonald.

Quebec Home Economics Association at Macdonald

On February 11, 1991, members of the Quebec Home Economics Association enjoyed presentations by three members of the teaching staff of the School of Dietetics and Human Nutrition. The objective was to familiarize Home Economists with what was offered by the School and what research was being conducted. Drs. Louise Thibault, Arezoo Rojhani, and Timothy Johns each outlined their particular areas of teaching and research. The members present enjoyed the opportunity to be at Mac and to be up-dated in this manner.

The Quebec Home Economics Association is trying very hard to help teachers who have ended up having to teach Home Economics even though it is not their field of study. It is possible for these people to become associate members of the association. We would then be expanding the network of teachers helping teachers. If you are one, or know of a teacher who is teaching Home Economics and would like help, pass on QHEA's address: P.O. Box 398, Westmount, Que., H3Z 2T5.

A Belated Happy 90th Birthday!

Dr. Dorothy E. (Newton) Swales, celebrated her 90th birthday on March 6, 1991. Dorothy was the youngest, and is the last survivor, of five remarkable siblings of the Newton family, born near Lachute, Que., of Lincolnshire stock.

All five graduated in Agriculture from Macdonald. All five obtained their PhD degrees at various universities in scientific fields related to agriculture and made their careers in their chosen fields (see "Macdonald Then and Now," The Macdonald Journal, August 1984).



The Institute of Parasitology welcomed representatives from Schering Animal Health Division of Schering Plough Corporation on February 12, 1991. Schering has made a generous donation to the new building for the Institute, which is at present under construction, and has also given a number of contracts for pharmacokinetic studies at the Institute. From l to r, Dr. Marilyn Scott, Director, Institute of Parasitology, Mr. Ramon Kapur (President), Dr. Sid Brokken (Vice-President), Dr. George Vernimb, Schering Animal Health, and Dr. Roger Prichard, Dean, Faculty of Graduate Studies and Research, McGill.

CIFST National Conference

Montreal will play host to the 34th Annual Conference of the Canadian Institute of Food Science and Technology. The conference will be held from June 16 to 19 at the Queen Elizabeth Hotel. A planning committee consisting of several Macdonald College alumni and current students and staff of the Department of Food Science and Agricultural Chemistry have been hard at work planning for the conference. Among the alumni, Glenn Ikin is Co-Chairman of the Conference Executive Committee with Karen Lapsley and Nicole Rodrigue serving as chairs of the Technical Programs and Hotel and Accommodations committees, respectively. Among the staff, Fred van de Voort is the National President of CIFST for 1990-1991 and Selim Kermasha, Bill Marshall, and Intez Ali are serving as committee chairs. Jim Smith and Swamy Ramaswamy are organizers of Symposia for the conference, and Eby Noroozi is assisting with the Poster presentation of the technical program.



A meeting of the Advisory Board to the Faculty of Agricultural and Environmental Sciences was held at Macdonald last February. Chairman of the Board, Robert Panet-Raymond, l, and Dr. Roger B. Buckland, Vice-Principal (Macdonald Campus), r, pose with Board members who are Macdonald graduates, l to r, David Lees, Owen Ness, Anna Hobbs, Peter Finlayson, and Donald Young.

Off Campus

Mr. Premier

The Macdonald Journal joins McGill's Faculty of Agricultural and Environmental Sciences on the Macdonald Campus in congratulating the Honourable Donald W. Cameron, BSc(Agr)'68, the new Premier of Nova Scotia.

Mr. Cameron is from Egerton in Pictou County. He was first elected to the Nova Scotia Legislature in April 1974 and has been re-elected in 1978, 1981, 1984, and 1988. He was appointed Minister of Recreation in October 1978 and held that portfolio until June 1979. He was also Minister of Fisheries until June 1980, and in 1988 he was appointed Minister of Industry, Trade and Technology.

Donald Cameron's wife Rosemary (Simpson) was originally from Quebec City. She, too, is a Macdonald graduate - in Education - in 1967. They have three children: Natalie, David, and Christine.

CHARLES COLES, BSc(Agr)'72, who is the Assistant Director of Marketing and Extension with the PEI Department of Agriculture, is the current President of the Canadian Agricultural Extension Council. He has also just completed a term as Chairman of the Atlantic Agricultural Hall of Fame.

JOHN RHEAUME, BSc(Agr)'81, MSc(Agr)'85, PhD'90, is Manager of Technical Services and Nutrition for DACO Laboratories Ltd., in Stratford, Ont.

Recent news from BILL SHAVER, Dip '81, was written from the Persian Gulf. Bill is with the U.S. Merchant Marine as an Engineer aboard a hospital ship, the USNS Comfort.

DARWIN SMITH, Dip'82, is working for Jack McLaren Farm Services Ltd., in Cobden, Ont. This is a company specializing in farm automation.

BEVERLEY MacDOUGALL, BSc(Agr)'83, has returned to practicing veterinary medicine in Bowmanville, Ont., after touring Australia.

ROD MacRAE, MSc(Agr)'83, has handed his PhD thesis to his reviewers and has left Macdonald after a four-year stint to accept a newly created position with the City of Toronto as Coordinator of its new Food Policy Council. The Council plans to change the city's relationships with the food system and, ask his many friends in the Ecological Agricultural Projects office at Mac, "Who could guide them any better than Rod?"

SERGE BOUTET, BSc(Agr)'84, is pleased that he has moved into Ralston Purina's formulations section. He has been with the company for 2 1/2 years.

CAROL BOYD, BSc(Agr)'84, is currently a partner in John's Pet and Garden Supply in Alliston, Ont.

MARG ZILLIG, BSc(Agr)'84 has been employed as a research assistant at the Agriculture Research Station in Lethbridge, Alta. She is assisting DR. KAREN BEAUCHEMIN, BSc(Agr)'78, a ruminant nutritionist, with a lamb nutrition study.

HELENE GADROURY, BSc(Agr)'85, MSc(Agr)'88, is the Media Relations Officer (Bilingual) for the Ontario Ministry of Agriculture and Food in Toronto. She and husband Eric are now living in Milton.



Enjoying Reunion last September were, front row, 1 to r, Anne-Marie Melnyk, Jacques Boutin, Johanne van Rossen, Ronnie Quilty, Darlene Stoddart, Helene Choiniere, Shiona Dempster. Back row, 1 to r, Jacques Oligny, Kirk Stoddart, Dave MacKenzie, Michel Duquette, Andy Welden, Gary Desmarais, and Yves Choiniere. Visiting their table during the barbecue dinner and square dance hosted by the Diploma Graduates' Association brought lots of news. We thank SHIONA DEMPSTER, BSc(Agr)'84, MSc'89, for compiling it for us.

Shiona is married to GARY DESMARAIS, BSc(Agr)'85 (in 1986), and their "joy" is daughter Lydia. Gary is a swine consultant with Shurgain (part time), and they run a farrow to finish swine operation full time.

JACQUES BOUTIN, BSc(Agr)'85, and JOHANNE van ROSSUM, BSc.(Agr)'85, were married in 1988. Johanne is a coop research farm supervisor in Ste-Rosalie. They are doing trials with cereals, corn, soybeans, and pesticides.

YVES CHOINIERE, BSc(AgrEng)'84, and HELENE DESROCHERS, BSc(Agr)'85, were married in 1988. They are at Alfred Agricultural College in Ontario. Yves is finishing a MSc degree in Civil Engineering in Ottawa. They are the proud parents of Jean-Philippe.

MICHEL DUQUETTE, BSc(Agr)'85, is married to JENNIFER GARFAT, BSc(Agr)'86 (1988), and is a farm credit councillor with OCAQ. Michel Jr. was six-weeks old at Reunion. Congratulations!

ANNE-MARIE MELNYK, BSc(Agr)'85, works for Public Works Canada. Married to David Nicholls, they are ecstatic about their young son.

RONALD D. QUILTY, BSc(Agr)'85, is a weed control technician with Agriculture Canada in Charlottetown, P.E.I. He is a member of the Quarter Horse Association and has been a licensed private pilot for the last three years.

KIRK STODDART, BSc(AgrEng)'85, is working on the family farm where they raise purebred Simmentals. He also works in construction (trusses and designing roofs), and is married to Darlene Daigneault.

ANDREW WELDEN, BSc(Agr)'85, is an agronomer with Pickseed Canada Inc., and has his own farm - American quarter horses and Simmental cattle.

MARIELLE PAQUETTE, BSc(Agr)'89, was recently promoted as North Shore region (Joliette) representative for AgroSpray.

ANNE BRUNET, Dip'90, is a Marketing Specialist (bilingual) at Eastern Breeders Inc in the head office in Kemptville. Anne was Liaison Officer for the Diploma Program.

WALTER QUILTY, BSc(Agr)'90, is living in Beeton, Ont., and working for Cargill.

REGINA CHUA, BSc(NSC)'90, is in Sioux Lookout, Ont., and is employed by Versa Services. She is working in two hospitals and is doing community visits to northern reserves.

GENEVIEVE PELLETIER, BSc(AgrEng)'91, has a one-year contract with Agriculture Canada in Harrow, Ont.

Deceased

ROBERT CECIL PARENT, MSA'24, of Charlottetown, P.E.I., in March 1990.

HUGH M. P. CHAMBERS, Dip'31, of Montreal, Que., on January 25, 1991. Hugh Chambers came to Macdonald from Suffolk, England, to obtain his Diploma. He managed a number of dairy farms until 1947 and then spent the next 30 years working on a mushroom farm in the Eastern Townships. Upon retirement

in 1976, he volunteered his help to the Canadian Executive Service Overseas and spent a short time as a mushroom consultant in Colombia.

WILLIAM M. KYDD, BSc'40, of Kingston, Ont., on December 21, 1990.

LOUISE S. (SCOTT) FARR, BSc(HEC)'46, of Hamilton, Ont. No further information.

GAVIN NICHOLSON, BSc(Agr)'52, of Deep River, Ont., on March 6, 1991.

MARION I. (GILBERT) DOWNES, BSc(HEC)'53, of Troy, New Hampshire, on December 12, 1988.

LORNE FULTON, BSc(Agr)'58, of Orangeville, Ont., on October 23, 1990. Lorne Fulton was Regulation and Environmental Manager at CIBA-GEIGY Canada Ltd. He was actively involved in the Crop Protection Institute, serving on its technical committee for many years.

HSIEN-HUA CHENG, MSc(Agr)'65, PhD'67, of Delhi, Ont. No further information.

DR. GRACE ROBERTSON, of London, Ont., on February 17, 1991. Dr. Robertson, who obtained a BA from Hunter College, New York, and a MSc and PhD in the Department of Microbiology and Immunology of McGill, was a Sessional Lecturer in the Department of Microbiology from 1966 to 1987. She taught the Diploma course in Microbiology from 1972 until 1987 and was Curator of the Departmental Culture collection. Dr. Robertson was an enthusiastic and dedicated teacher who went out of her way to teach a course which was relevant to the needs of the Diploma students. She maintained high academic standards and was rigorous about her insistence on good laboratory technique. On the death of her husband, Rod, in 1982 she established the Girvin-Robertson Prize in Microbiology in his honour.

Grace Robertson was full of life and good fellowship. At the McGill and Macdonald parties at the annual meetings of the Canadian Society of Microbiologists, she is remembered

as the pianist who led the groups in rousing renditions of many popular songs. She was planning to host, at her home in London, the Macdonald graduates and staff attending the C.S.M. meeting in June.

KEEPING IN TOUCH Thrilled with Issue

I was thrilled with the Autumn 1990 issue inasmuch as it contained news items concerning two Howick men: the presence of one at the September 22, 1990, Reunion - Bob McFarlane, Diploma '37, - and the memory of the other - the late Ross Elliot, 1932-1988, President of the Diploma '55 Class. I am sure that Bob McFarlane would have been more than happy if his late cousin, Archie Roy, well-known farmer and Ayrshire breeder, had been spared to sit by his side at that happy event. But Archie, like Ross, has left us, also in 1988.

(continued from page 27)

who have an intolerance or allergy to cow's milk.

In the fall of '89 Shelley and Tony started feeding both goat and Jersey milk to about 10 weaners, and they now are up to around 20.

Tony has bought eight Jerseys from various breeders, and he's very proud of the three Jersey heifer calves born on the farm. He also has four older heifers, one a Holstein. He uses CIAQ sires. "I know the animals and their production records from their previous owners, and I use these when I choose the bulls." Once permanently settled, and depending on the set-up, Tony would like to have 30 - 50 milking cows.

"We're in beef together," Shelley said. "We have eight Simmental crosses that came from my brother's farm. Actually, there is a new addition as Tony gave me a beautiful heifer for my birthday!"

Where would they move to? It depends on the opportunity. "Right now," Tony said, "both our jobs allow us some flexibility to deal with truckers, vets, unexpected illness. We would have to locate where there was at least one

I was thrilled to see the meaningful tribute paid to the late Ross Elliot by his fellow classmates. His untimely passing in the latter part of 1988 hit us very hard here. Grown men do not often show their emotions, but they did that day, unashamedly. Ross, like his father before him - the late Wallace Elliot, 1897-1974, was a very quiet, retiring type but an excellent example of citizenship. He was active on the local school board and in his church, and he was an industrious young farmer. His son, Greg, is now left to carry on and is doing a splendid job to keep up the tradition. I have sent a small donation to Dean Buckland to add to the amount already presented by the class members in the hope that it will help to provide more of a memorial to this young Howick farmer so well known and much loved by his family.

Eric H. Rumsby
Howick, Que.

good job available." Tony's number one interest would be to stay with Jerseys. He would, however, be happy with a Jersey Holstein mix. Although Shelley enjoyed making cheese, she would rather ship the goat's milk to cheese producers.

Unfortunately the farm that Shelley and Tony have bought does not qualify for government assistance. They have not gone over their head financially to get started as so many young people are apt to do. They have made improvements to the house, which didn't have a proper bathroom or hot water, and to the barn and are working on the land. Their investment should pay dividends and it is to be hoped that when they make the next big step, there will be some monetary assistance.

These two young people are putting in a long day. They started small and they're working hard because they're planning big! In the meantime, with a small farm, goats and Jerseys, they've decided their philosophy is "Bigger is not necessarily better!"

The interview, copy, and photos are the combined efforts of the Journal editor, Hazel Clarke, and Linda (Annesley) Hoy of Huntingville, Que. My thanks to Linda for her help and to Shelley and Tony for the pleasant evening spent at their farm. My thanks also to Martha Robinson for her photos.

How to Keep Her in Top Condition.



Every dairy producer knows that better feed keeps cows in better condition. One look tells them so.

Sila-bac[®] brand silage inoculant makes silage better. No brag, just fact: 27 documented performance trials on alfalfa, grass, cereal, and corn silage, prove it!

A recent Macdonald College trial confirms it once again. Alfalfa silage inoculated with Sila-bac 1174 helped high-producing cows maintain better body condition. In fact, they lost 75% less body condition during peak lactation than similar cows fed untreated silage. Maintaining body condition, of course, is vital for milk production persistence and re-breeding success.

Sila-bac 1174 improves palatability and enhances intake, as well as improves

protein quality and fibre digestibility — all critical production factors.

See your Pioneer Sales Representative soon. Ask for a copy of the Macdonald College results. Your sales representative also has what progressive dairy producers use to help keep their cows in top condition ... Sila-bac 1174 silage inoculant.

**For better feed, it's a fact,
Inoculate with Sila-bac!**



SILA-BAC[®]

BRAND • INOCULANTS

PIONEER HI-BRED LIMITED, CHATHAM, ONTARIO N7M 5L1
All sales are subject to the terms of labelling and sale documents.
®Registered trademark licensed to Pioneer Hi-Bred Limited.

McGill

Have You Considered a Career in the

Applied Sciences?

WE HAVE B.Sc. PROGRAMS IN

Agricultural Economics – Animal Science – Botanical Science – Food Science – General
Agricultural Science – Plant Science – Agricultural Engineering –
Environmental Biology – Microbiology – Applied Zoology – Pest Management
– Resource Conservation – Wildlife Resources –
Nutrition – Dietetics

**Faculty of Agricultural and Environmental Sciences
and School of Dietetics and Human Nutrition, Macdonald College**

21, 11 Lakeshore Road, Ste. Anne de Bellevue, P. Q. Canada H9X 1C0

Call the Registrar's Office at

(514) 398-7928 or see your Academic Adviser.

